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DIMENSIONS OF THE LEADER BEHAVIOR OF PRINCIPALS STAFF MORALE AND PRODUCTIVITY

A THESIS
SUBMITTED TO THE FACULTY OF GRADUATE STUDIES
IN PARTIAL FULFILMENT OF THE REQUIREMENTS FOR THE DEGREE
OF DOCTOR OF PHILOSOPHY

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by
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ABSTRACT

This thesis examines the relationships among two dimensions of leader behavior of principals, two dimensions of staff morale and one dimension of productivity. The study was conducted in forty-two average-sized, non-city schools, divided into two groups on the basis of a measure of productivity obtained from grade nine departmental examination marks, with the effect of intelligence test scores partialled out.

Leader behavior of principals was measured by the Leader Behavior Description Questionnaire which yields scores on two dimensions: Consideration and Initiating Structure-in-Interaction. Staff morale was measured by the Keeler Scale for the Cohesiveness and Induction of Teaching Staffs. Development of this latter instrument, which was not entirely satisfactory, is outlined in detail.

The two groups of schools did not differ significantly in training or experience of principals and teachers, staff size, tenure, absenteeism or composition by sex or marital status. No consistent differences were observed in socio-economic status.

Significant correlations were found between Productivity and each of Consideration, Initiating Structure, Cohesiveness and Induction. The best prediction of Productivity by two variables was given by Initiating Structure and Induction. Non-parametric statistics confirmed the relationships indicated.

Significant differences between the distributions of the

principals of the two groups on the leader behavior dimensions were found: principals of high productivity schools tended to be above the mean on both Consideration and Initiating Structure, while those of low productivity schools tended to be below the mean on both.

Significant differences between the distributions of the staffs of the two groups on the morale dimensions also were found: staffs of high productivity schools tended to be above the mean on both Cohesiveness and Induction, while those of low productivity schools tended to be either below the mean on both or below the mean on Induction and above the mean on Cohesiveness.

Little evidence was found of a relationship between the leader behavior dimension scores and the morale dimension scores. Several possible reasons for the absence of this relationship are discussed.

General conclusions were as follows: there was strong support for the belief that the leader behavior of the principal of a school affects the productivity; there was considerable support for the belief that the morale of the staff of a school affects productivity; and there was little support for the belief that the leader behavior of the principal of a school affects the morale of the staff.

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CHAPTER I

INTRODUCTION AND STATEMENT OF THE PROBLEM

Statement of the Problem

The manifest function of education in the public schools is to produce changes in children--changes in knowledge, skills, attitudes and behavior. There is great variation in the convictions held by various individuals as to what knowledge, skills, attitudes and behaviors are desirable and which ones are objectionable. Nevertheless, any evaluation as to what is good or bad in education must be based, in the final analysis, on the degree to which the school produces those changes in children which are desired by the society in which it operates. This applies to any aspect of education, be it in the realm of administration, curriculum, supervision, finance, school plant or teacher preparation.

It is widely assumed that morale is a causal factor in productivity. Although there is some empirical evidence tending to question this assumption (10, 18), it is treated by many persons (11) as if it were a sociological law. If it be, in actuality, a law, application to the educational situation should be entirely valid. Such application has been suggested in a publication of the American Association of School Administrators, (1) which lists "better staff morale" as one of five "intermediate results" which might be measured as a substitute for the difficult appraisal of the effects of learning experiences that emerge in the lives of boys and girls.

A second widely-held assumption is that the behavior of the leader of any formal group determines, or at least affects in large measure, the level of morale of the group. Again there is some empirical evidence (6) which casts doubt on the validity of this assumption, as well as some supporting it. (4)

A third popular assumption is that there is a strong relationship between the behavior of the leader and productivity. This assumption is often made independently of the other two--that is leader behavior affects productivity without necessarily doing so through morale.

It is the object of this study to test the assumptions that the behavior of the principal in a school is a factor in the level of teacher morale, and that morale of a staff is a factor in the level of achievement of the pupils. Since data assembled to test these two assumptions permits the testing of a direct relationship between leader behavior and productivity, such a test is also made.

Part of the inspiration for this study was derived from the writings of Andrew W. Halpin (12, 13, 14, 15). Two quotations will suffice to show this derivation:

> ...the behavior of a leader who is "effective" in maintaining high "morale" (a sticky term that requires a much clearer definition than has yet been accorded it) and good human relations within the group is not necessarily "effective" in accomplishing high production and goal-achievement. (12, p.176)
>
> Strictly speaking, however, it remains an assumption until evidence is produced to demonstrate the generalizability of the earlier findings to a sample of superintendents. To demonstrate

> this empirically, it would be necessary to show the relationship between the LBDQ/Real scores by which superintendents are described and one or more independent criteria of effectiveness. We surmise that the findings of such a study would support the assumption we have made, but the study remains to be made. (14, p.70)

Importance of the Study

Three assumptions commonly held, but insufficiently substantiated by research have been outlined above. A considerable proportion of thought and action in the field of educational administration is predicated on them. If these assumptions are borne out by the present investigation, administrators will be able to continue in this pattern with increased confidence. If, however, they should be refuted, this study would serve as an indication that a reappraisal of practice in the field should be considered, presumably after additional research.

The findings may also have significance for the selection and retention of administrative personnel. If the instrument used to measure leader behavior does indeed show a relationship with productivity, it is possible that it can be used as an instrument of evaluation of educational leaders. In fact, even without this partial validation of the instrument, it has already been offered for such use by its originators (15).

A third possible value of the study is in the field of training educational administrators. If the findings are such as to demonstrate that certain ways of behaving are more effective in the leadership role than others, then potential administrators, as well as those already in

the field, should be aware of this.

Definition of Terms

Productivity. The word is used in two senses in this study. In its general sense it is used to mean the intended outcomes of the enterprise, in this case the educational system. In its more restricted sense, it is used to mean one dimension of the outcomes of the educational system (a specific measure of part of these outcomes): a Z-score based on average aggregate of grade nine departmental examinations, with differences in average intelligence test scores partialled out.

Initiating Structure-in-Interaction. Initiating Structure-in-Interaction is also referred to as simply Initiating Structure. Structure-in-Interaction is defined as "a consistency in behavior occurring during interaction that permits the prediction of the behavior that will occur in future interactions." (14, p.96) Initiating Structure is, therefore, originating or tending to create this consistency. As the concept is used in the Leader Behavior Description Questionnaire, it refers to the behavior of a leader in outlining his relationship with the group, and in trying to set up patterns of organization and channels of communication within the group.

Consideration. "Consideration refers to behavior that reflects friendship, mutual trust, respect and warmth in the relationship between the leader and group members." (12, p.175)

Morale. The definition of the word morale is treated at some length in Chapter II, since its meaning is not agreed upon by authorities

in the social sciences. For the purposes of this study, part of a definition suggested in unpublished material from the Midwest Administration Center (17) is used: "Morale is a group phenomenon which depends upon the extent to which...group members have a feeling of group belongingness and identification with group goals." (17, p.3) Morale, then, is considered to have two dimensions, which, borrowing terminology from Schachter et al. (19), are called cohesiveness and induction. The omitted part of the definition from the Midwest Center (17) implies the existence of a third dimension, termed rationality; however the present investigation deals only with cohesiveness and induction. The study does not test the rightness of the conceptualization of morale along these two dimensions, but in some of its results, it does demonstrate the usefulness of such a conceptualization, its construct validity.

Induction. By the term induction is meant the group phenomenon which, considered in the individual, may be called goal orientation. Goal orientation is the extent to which the goals of the individual are identical with the goals of the organization. Obviously, complete identity of individual and organization goals would constitute an ideal-type. In considering the goal orientation of more than one individual, those in whom greater identity of goals is found may be said to exhibit high goal orientation, while those in whom lesser identity is found may be said to exhibit low goal orientation. The induction of a group may likewise be considered as high or low in comparison with another group or with a pre-established point. It is assumed that the induction of a group is the sum of the goal orientation

of its members.

Cohesiveness. By the term cohesiveness is meant the group phenomenon which, considered in an individual, is called belongingness. Cohesiveness is a resultant of the sum of the forces tending to draw the members of the group together, minus the sum of the forces tending to draw the members apart. As with induction, the terms high and low may be used to describe the cohesiveness of groups in comparing them with one another or in comparing one or more groups with a pre-established norm. It is assumed that the cohesiveness of a group is the sum of the belongingness of its members.

Design of the Study

In order to test the hypotheses with which the study deals, several schools were selected on the basis of a measure of productivity.

Two instruments, one designed to measure staff morale and the other designed to measure leader behavior, were administered to the staffs of the schools in the sample, by the investigator or his representative, during the second quarter of the 1959 calendar year. The instruments provide scores on two dimensions of leader behavior of the principal (as perceived by his staff) and two dimensions of staff morale for each school. Interrelationships among the five variables are demonstrated by statistical analysis.

Instrumentation

Productivity. A productivity index was derived from Alberta grade nine departmental examination results and an intelligence test.

The intelligence test that was used in deriving the productivity index was the Cooperative School and College Ability Tests (SCAT), which grade IX pupils write at the same time as the Departmental examinations. This instrument is reported as having a reliability coefficient (equivalence) of .95 (7, p.140).

The second factor was the aggregate score on examinations, which are set annually by the Alberta Department of Education and written by all grade IX students in the province. The results of the examinations in Literature, Language, Social Studies, Science and Mathematics are scaled and the scaled scores are summed for each pupil. It is on the basis of this aggregate that promotions to grade X are made for the entire province. These marks are the official measure of the productivity of Alberta schools at the grade IX level. The number of pupils writing in 1959 was 17,803. The examination in each subject is prepared by experts in that subject to conform to a set pattern and the examinations are widely accepted by educational authorities in the province as having high content validity. They also appear to have substantial predictive validity. Black and Ulmer (2) found correlations between grade XII departmental examination averages and grade IX departmental examination averages of .68, .74 and .57 for samples of city, town and rural students, respectively. Black (3) later found multiple correlations between grade nine examination results and a number of first year university courses ranging from .349 in the case of Engineering Physics to .614 in the case of English. There is no direct evidence on the reliability of these examinations except that implied by the evidence of validity. However,

the examination marks correlate highly with SCAT, which itself has a high reliability as noted above. In the present study, the correlation between SCAT scores and average aggregate grade IX Departmental examination results was .79.

The school productivity measure, then, was based on the average aggregate of the grade nine pupils of a school, with the difference in intelligence test scores partialled out by means of a regression equation: $\tilde{Y} = a + bX$, where $\tilde{Y}$ is the point on the regression line for average achievement, a is 200, b is 1.9 and X is the mean intelligence test score expressed as a percentile. The regression equation was calculated from data obtained from the Alberta Department of Education Examinations Branch for the 1957 and 1958 examinations. The data covered one hundred seventy-nine schools of the type used in the study, including the sample eventually used. On this basis, the investigator was able to assign a Z-score to each school called the productivity score, using the following formula: $Z = 30 + 10 \ \frac{(Y - \tilde{Y})}{14}$. This productivity index can be considered reliable and valid only to the extent to which the two factors determining it are themselves reliable and valid. In the present case these attributes cannot be given in quantitative terms, but the evidence, as presented, is judged to indicate that considerable confidence may be placed in the reliability and validity of the index.

It will be noted, however, that only one dimension of School productivity is tapped by this measure. Professional educators have been vocal in pointing out that much of the productivity of the educational system cannot be expressed in terms of examination results

and the present writer would agree with this point of view unreservedly. However, this belittling of "marks" has gone on to such an extent that it has become almost socially unacceptable to say that such results measure productivity at all. Nevertheless, in practice, examination results constitute by far the most usual basis for evaluation of students. That this is the case for Alberta grade IX students has already been pointed out. It is not the intention here to err in the opposite extreme; it is, however, a basic assumption of this study that examination results constitute a valid measure of certain of the educational outcomes, or productivity.

Leader behavior of the principal. The instrument chosen for measuring the leader behavior of the principals is the Leader Behavior Description Questionnaire (the LBDQ). This instrument, developed by Halpin and others (5, 8, 9, 11, 13, 14, 15, 20) has already been employed in a variety of situations with noteworthy success. The present study will test the hypothesis that certain ways of behaving are more effective than other ways by comparing the scores obtained with productivity as measured in this study.

The LBDQ is designed to measure the two principal dimensions of leader behavior, Initiating Structure-in-Interaction (S) and Consideration (C). Reliability coefficients have been calculated for the instrument at each stage of its development. For the form used in this study the reliabilities for the whole test, estimated by the Spearman-Brown prophecy formula from split-half reliabilities, are .93 for Consideration and .86 for Initiating Structure (20).

If this instrument is a valid measure of leader effectiveness[1], those schools in the High Productivity group should have principals who score high on both dimensions, while the principals of the Low Productivity group would be expected to score relatively low on both dimensions.

In addition to single scores on each dimension, the LBDQ allows the placing of a given individual in a quadrant determined by the two axes, one for each dimension, cutting the scores at the median of the whole group of scores. (See figure 1, p.12) In terms of this graphical representation, one would expect the principals of the High Productivity Group to cluster in the upper right hand quadrant and those of the Low Productivity Group to cluster in the diagonally opposite quadrant.

Morale of the teaching staff. An instrument intended to measure two group dimensions, Cohesiveness (CO) and Induction (I), was developed for use in this study. It is assumed, for the purpose of a theoretical framework for the study, that Cohesiveness and Induction are two independent dimensions of morale.

The instrument used in the study has been named the Keeler Scale for Cohesiveness and Induction of Teaching Staffs (KESCITS). Again, in addition to single scores on each dimension, KESCITS allows the placing

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[1] It should be emphasized that the LBDQ was developed as a description of leader behavior, not as a measure of leader effectiveness. The entire process of its development has demonstrated the construct validity of the instrument, and various studies (20) have given evidence of concurrent validity. The type of validity referred to here is, essentially, predictive validity of the instrument as a measure of effectiveness.

of a given staff in a quadrant bounded by the two axes, one for each dimension, with the medians used as cutting points. (See figure 2, p. 12) In terms of this graphical representation, one would expect the staffs of the High Productivity Group to cluster in the upper right hand quadrant and those of the Low Productivity Group to cluster in the diagonally opposite quadrant.

The development of this instrument and attempts at validating it were carried out during the first third of the calendar year 1959. This work is reported in some detail in Chapter III.

Hypotheses

The research hypotheses of this study are that leader behavior of the principal of a school who exhibits a high degree of initiating structure and consideration tends to produce a state of staff morale high in cohesiveness and induction, and that such leader behavior and/or such morale lead to high productivity.

Working hypotheses for the study, expressed as null hypotheses, are:

(1) Principals in the High Productivity Group will be distributed randomly in the quadrants of the LBDQ.

(2) Principals in the Low Productivity Group will be distributed randomly in the quadrants of the LBDQ.

(3) There will be no significant difference in the distribution in the quadrants of the LBDQ between principals in the High Productivity Group and those in the Low Productivity Group.

C + S -	C + S +
C - S -	C - S +

Figure 1

The LBDQ Quadrants

S = Initiating Structure
C = Consideration

CO + I -	CO + I +
CO - I -	CO - I +

Figure 2

The KESCITS Quadrants

I = Induction
CO = Cohesiveness

(4) Staffs in the High Productivity Group will be distributed randomly in the four quadrants of KESCITS.

(5) Staffs in the Low Productivity Group will be distributed randomly in the quadrants of KESCITS.

(6) There will be no significant difference in distribution in the quadrants of KESCITS between staffs of the High and Low Productivity Groups.

(7) There will be no significant relationship between the distribution of principals on the LBDQ and the distribution of their staffs on KESCITS for the High Productivity schools.

(8) There will be no significant relationship between the distribution of principals on the LBDQ and the distribution of their staffs on KESCITS for the Low Productivity Schools.

(9) There will be no significant relationship between the distribution of principals on the LBDQ and the distribution of staffs on KESCITS for the entire sample.

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CHAPTER II

RELATED LITERATURE

Morale and Productivity

In this section literature relating to relationships between morale and productivity is reviewed. The review is restricted, in large measure, to research rather than theoretical formulations. The research studies were carried out in a variety of settings; education has not been one of these settings except in rare instances, and it is only an assumption that the findings of military and industrial studies may be applicable in education.

Brayfield and Crockett (6) have made an extensive survey of the literature falling under this heading and their work is used extensively here. Their conclusions are (a) that satisfaction with one's position in a network of relationships does not necessarily imply a strong motivation to performance within the system, and (b) that productivity may not be centrally related to the other goals of the industrial worker. It should be noted at once that these conclusions are somewhat removed from the direct point under consideration. The first conclusion considers the individual rather than the group and treats job satisfaction rather than morale, though in many of the studies job satisfaction was assumed to be morale.

One of the earliest studies reported by Brayfield and Crockett (6, p. 397) is that by Kornhauser and Sharp in 1930. These researchers used interviews and questionnaires to determine the

attitudes of between two and three hundred young girls employed by the Kimberley-Clark Corporation at routine repetitive jobs. The relationship of attitudes to performance (as measured by efficiency ratings) was reported to be not statistically significant.

Brayfield, using the Brayfield-Rothe Job Satisfaction Blank as an index of job satisfaction in 1944, assembled data on over two hundred female office employees of the same company in various offices throughout the country. A low, but significant correlation was found between job satisfaction scores and performance ratings. (6, p. 398)

Katz and Hyman carried out a research study in five ship-yards (cited in 43). They used two simple measures of morale, one of which was a yes-no answer to the question, "Have you ever felt like quitting the yards?" The index of productivity for the yards was the time it took to turn out a ship. The rank order correlation on these two measures was quite high. The second measure of morale was given by answers to seven items about specific aspects of the working situation. The relationship with productivity was somewhat less in this instance, but still statistically significant. Later work by Katz and others in an office situation (37) and among railroad section hands (36) showed no significant relationship between productivity on the one hand and intrinsic job satisfaction, company involvement, or financial or job status on the other. However, both studies showed that an employee-oriented attitude was more common among heads of high productivity groups and a production-oriented attitude more common among heads of low-productivity groups.

Krech and Crutchfield (38) in a logical analysis of the problem cite productivity as a misleading indicator of morale, pointing out that increases in productivity can be brought about by means other than improved morale. They do not deny that improved morale may result in increased productivity.

Giese and Ruter (20) fail to specify what their questionnaire designed to measure morale contained. However, they found a multiple correlation of .71 between their measure of morale and six factors affecting productivity. It should be noted that this correlation applies to departments, not to individuals, and that the separate measures did not all correlate highly. Per cent productive efficiency, taken alone, had a correlation of only .19 with the morale score. Since the researchers were performing the survey for a company, they point out the extensive financial loss caused by the two factors which were most highly correlated with morale: per cent turnover and per cent absent. The writers recommend to the company that in future these "objective criteria" be used to estimate morale. It may or may not be significant that at the time of the study (1949) they reported that a second survey was being carried out to validate the first one, but that a search of the literature fails to reveal any report of this second survey.

Fleishman, Harris and Burtt (17) used similar secondary criteria of morale in their consideration of the factor, basing their morale judgments on absences, accidents, grievances, and turnover. Their measure of productivity was also indirect, being a superior's

estimate of departmental efficiency. On the basis of their study they comment that the proposal that good morale leads directly to increased efficiency needs to be qualified.

Moving from this business-oriented research to the highly artificial laboratory situation set up by Schachter and others (53), one finds corroboration of the general trend that there is not a one-to-one relationship between morale and productivity. In this experiment the researchers employed college women as "group" members. Each girl was placed alone in a room at an elementary manual task, having been given the impression that she was working in a production line with two other girls, located in other rooms. Some of the girls had been told that their co-workers were highly compatible, while others had been told that this was not so. Each girl received several notes during the working period, one group getting notes exhorting them to greater efforts while the other group was urged to slow down. This design gave four treatments: high cohesiveness and positive induction, high cohesiveness and negative induction, low cohesiveness and positive induction and low cohesiveness and negative induction. The findings, taken at face value, are somewhat disturbing: there was little difference between the two groups subjected to positive induction, but of the two groups subjected to negative induction, the more cohesive group was significantly affected by the negative induction while the less cohesive group was not affected. The extreme artificiality of both the induction and cohesiveness of the "groups" in such a laboratory situation leads one to question the validity of the findings.

In this connection, however, an interesting study by Borgatta and Cottrell (5) tends to show that laboratory groups have measurable dimensions which are the same as those found in "real" groups, and therefore groups established in laboratories permit valid experimentation.[2]

A study conducted by Coch and French (11) concluded that it is possible for management to decrease greatly group resistance to changes in methods of work. The details of their report tend to bear out, in part, the conclusion of Schachter (53) referred to above, that the poorest combination from the point of view of productivity is high group cohesiveness and negative induction. In the experiments in question, the methods of group dynamics were employed to lead the worker groups to accept proposed changes. This had the effect of channelling the group potency inherent in the high cohesiveness from negative to positive (from the point of view of management) goals.

Anderson (2) has conducted an extremely interesting study of teacher morale and its relation to student achievement, that is to a measure of teacher productivity. Using standardized tests (Iowa Tests of Educational Development), he selected ten schools with scores of seventy-five or higher and ten schools with scores of thirty or lower. He then administered to the staffs of these schools a morale scale, constructed on the basis of items widely accepted in the

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[2] The writer is aware of the objections of Gross and Martin (23) to Schachter's definition of cohesiveness, but is unable to support their point of view.

literature as reflecting morale. The difference in morale between the two groups was found to be significant at the five per cent level of confidence. While the researcher draws some sweeping conclusions from this limited study, it is significant in that it appears to be the only work yet done on this particular question in education.

One of the hypotheses advanced by Congreve (12) on the basis of his case studies of two schools is in direct contradiction to the relationship between morale and productivity found by Anderson (2), reported in the preceding paragraph. While the limits to the acceptance of this statement are obvious, it can scarcely be ignored entirely:

> Teacher effectiveness does not appear to be greatly affected by the nature of the informal organization of the school. Unlike industrial organizations, where a direct relationship has been found to exist between the informal organization and productivity (sic), no such relationship seems to exist in the school. (12, p.3)

Morale and Leader Behavior

The second relationship dealt with in this chapter is that between morale and leader behavior. The literature reviewed here is principally of a research character and includes for the most part studies done in the field of education.[3]

A report of research which serves as a transition between these two topics is that presented by Professor Howard Jones in a

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[3] Studies in other fields which add or detract little from the work presented in this section are Christner and Hemphill (10), McGregor (46), Stagner, Flebbe and Wood (56), Wickert (62) and Worthy (63).

recent radio broadcast (35). He states the fundamental proposition that productivity is connected with group morale and that this is dependent to some extent on leadership. He carried out an experiment with salesmen, under two conditions of leadership--the "normal" situation where competition and commissions were emphasized, and the "experimental" one where teamwork and cohesiveness were emphasized. He reported that productivity was increased relatively under the latter condition.

Guba and Bidwell (24), in a major study on teacher effectiveness, teacher satisfaction and administrative behavior, conclude that the effectiveness, satisfaction and confidence in leadership of staffs of teachers were closely related to congruency of perceptions held by principals and teachers. This was reported to hold true of perceptions of expectations and of behavior. They point out that they have not studied morale as such, offering a conceptual model of morale on which to base more useful research in connection with this concept and leader behavior.

The significant point appearing from the work of Guba and Bidwell (24), that it is not so much the specific behavior of the leader which determines teacher attitudes and effectiveness as it is agreement between the teachers and the administrators on what the expectations of the leader should be, is borne out also by the work of Cornell (13). While he found that the amount of participation by teachers in the making of policy in the school was quite a good predictor of classroom behavior, a much greater correlation was teacher morale. Cornell says,

> This certainly seems to support the conclusion that how teachers feel toward the organization is as important as, if not more important, (sic) than the specific magnitude of their decision-making activities in it. (13, p.222)

Bey (4) makes an additional contribution to this general line of thought, concluding from his study of school organization that

> ...the relationship of the perception of administrative behavior to satisfaction with role in the organization seems to indicate a type of threshold situation. A slight reduction in teachers' evaluations of administrative behavior appears to result in a sharp drop in teachers' satisfaction with their roles in the organization. (4, p.221)

On the basis of case studies of two selected schools, Congreve (12) details several hypotheses. One of these is applicable to the point under consideration: "There appears to be a definite relationship between leadership style and the informal organization of the school." (12, p.3) This is, of course, only a hypothesis, but it is a more informed one than those merely plucked from mid-air and has, to that extent, a greater possibility of representing the truth.

Chase (8) found a number of miscellaneous factors for satisfaction in teaching. Many of these items may be questioned on one ground or another. For example he implies a cause-effect relationship which may in actuality be reversed: "Teachers rated by their superintendents as superior tend to be considerably more enthusiastic than those rated as below average." (8, p.128) It might well be: "Superintendents tend to rate teachers who are enthusiastic as

superior." He also examined a number of attitudes teachers considered as being related to their satisfaction. Of these, favorableness of opinion in regard to professional leadership of superordinates in the system was rated most important by the teachers. This would seem to support the finding of Guba and Bidwell (24) reported above. Extent of participation in various aspects of administration was next in importance in determining satisfaction of the teachers. This seems to corroborate the findings of Cornell (13) reported earlier.

Gibb (19) cites a finding of Scott that among naval ship's crews it seems that morale is highest in those units where leaders insist on relatively formal relationships between superior and subordinate. Although this finding seems in conflict with much recent work emphasizing the necessity of warm human relations for high morale, it is fully explicable in terms of congruence of expectations. Additional support for these points is offered by Chase (9) when he states:

> When teachers' expectations are fulfilled with regard to the leadership of administrators and supervisors, their morale soars; when their expectations are disappointed, morale takes a nose dive. (9, p.1)

Moyer (48) adds another facet to the question of congruence of perceptions. Although he does not employ the word specifically, his study, conducted in four Illinois school systems, shows that cohesiveness of the group is highly related to the amount of satis-

faction of the group. He breaks this into two parts: congruence of attitudes toward leadership, and unity of the group, and adds that the principal who reveals himself as encouraging increased independence of teachers is likely thereby to increase group satisfaction.

Jenkins and Blackman's (34) study of antecedents to administrative behavior is open to a number of criticisms, such as the lack of evidence of validity or reliability of some of the instruments they employed, and their assumption that there is such a high relationship between morale and productivity that the latter can be assumed to vary with the former, that it is sufficient to measure morale in order to estimate productivity. This assumption has little foundation in previous research, as has been demonstrated in the preceding section of this chapter. Despite this, their findings are of considerable interest: they found that, as measured by teachers' reactions and morale, school principals who worked primarily with a "relations-building" approach were significantly inferior to those who worked with an "administration-centered" approach. This finding is sufficiently at variance with a great deal of the recent literature in the field of educational administration to be repeated: the apparently "democratic" administrators were less effective in developing high staff morale than were the apparently "autocratic" administrators. However, this conclusion of Jenkins and Blackman may merely mean that the teachers involved in this study expected autocratic behavior of their principals, more than they expected democratic behavior, so that, after Guba and Bidwell (24) the

greater congruence of expectations and behavior led to higher morale in those staffs where there was a more autocratic type of person as principal.

Leader Behavior and Productivity

Studies relating to the relationship between leader behavior and productivity are reviewed in this section. Again, the few studies that have been done were not dealing with education, and applicability of findings to education can be assumed only. As in other aspects of the problem dealt with in this study, relationships are assumed much more frequently than tested, and also, in a number of studies purporting to test the relationship, the measure of productivity is indirect, necessarily so in many situations since "real" productivity is often not entirely measurable.

The studies by Katz and others have already been referred to in another section of this chapter. Although they failed to show significant relationships between productivity and certain measures of morale, the study concerning an office situation (37) did show that supervisors of high-producing sections are significantly more likely to receive and to give general rather than close supervision, to like the amount of authority and responsibility they have in their jobs, to spend more time in supervision, and to be employee-oriented rather than production-oriented. These findings were borne out to a large extent in a later study of railway section gangs (36), where the foremen of high sections were found to be more positive toward their men, to

take a more personalized approach to them, to give more attention to problems of their motivation, to perceive more clearly their leadership role and to evaluate their section more highly than did foremen of low sections.

Lawshe and Nagle (40) correlated a measure of relative productivity of work groups, obtained by a paired comparison system of rating by six executives, with the results of a questionnaire administered to employees, measuring attitude toward their immediate superior. The correlation was high and statistically significant. This is interpreted by the authors as substantiating the hypothesis that the supervisor's behavior, as perceived by the employees, is highly related to the output of the work group, as perceived by higher management.

Roff (51) studied combat leadership in the Air Force, using a rating scale which contained items relating to flying, combat proficiency, sincerity, impartiality, and lack of concern with personal advantage, among others. In a comparison made between officers who were deemed to be very successful and those who were considered very poor, the single characteristic found to discriminate most was ease of maintaining discipline on the ground. Characteristics such as sincerity, impartiality, and lack of concern for personal advantage were as effective in discriminating the upper from the lower group as items relating to combat flying proficiency.

A search of the literature has failed to reveal any study in the field of education strictly comparable to the foregoing examples from

other fields. There are many which use the term "effective" teacher, effectiveness being measured in a variety of ways. None of these, however, seems to relate the teacher's effectiveness or productivity to leader behavior of his superiors. Although the evidence presented here is not entirely in agreement, the conclusion can be drawn that, in non-educational fields, there appears to be a relationship between leader behavior and productivity of the group led. It seems reasonable that a similar relationship would be found in the field of education.

Leadership

The literature pertaining to leadership is so extensive that no attempt has been made to provide a complete review of it. There is no general agreement as to the meaning of the word or as to the nature of the quality. A very brief sketch is provided here of earlier lines of inquiry on the topic, and a more extensive coverage is given to recent work on the topic that is germane to the theoretical and practical considerations of the present study dealing with the measurement of leader behavior.

For many years, leadership was thought to be the result of certain individual qualities or traits or clusters of such traits, either inherited or developed, which caused certain individuals to be leaders, and certain other individuals not to become leaders. There is available a very exhaustive review of the research in this regard by Stogdill (58). The dangers of this emphasis were decried by Gouldner (21) but it was the mass of inconclusive and contradictory evidence of research

which has caused the abandonment of the theory. Weber and Weber (61) put the present position of most social scientists in this regard rather mildly:

> ...in spite of the fact that the personal-qualities theory of leadership has been accepted for centuries, available evidence casts serious doubt upon this theory as a total explanation of leadership. (61, p.45)

This theory was partly superceded and partly combined with one of situational leadership: each situation requires as leader a person with certain qualities. The person who becomes a leader in one situation will not necessarily become one in a different situation, or even at a different time. This is the "history makes men" point of view. This theory has also fallen into disuse due to lack of empirical evidence to support it.

Later work in the field of leadership dealt with identifying successful and unsuccessful leadership styles. Lippitt (44) and Lewin (42) have been leaders in a group positing three types of leader or leadership styles: democratic, authoritarian and laissez-faire. Getzels (18) has offered idiographic, nomothetic and transactional, and there have been a number of others.

The school of thought known as the group dynamics movement has offered a definition of leadership which puts emphasis on the function rather than on the person:

> Leadership is the set of functions through which the group co-ordinates the efforts of individuals. These efforts may result in satisfaction to the participants, as well as in help to the group in meeting its purposes. (57, p.308)

The ideas of group dynamics, coupled and confused with those of "democratic administration" have been influential in educational administration in recent years. Accepting the fact that social considerations now weigh much more heavily than formerly in the problems of educational administration, what does this mean in terms of leader behavior? It does not mean, except in the wild excesses of a few authors, that the educational administrator now thinks that he can solve all difficulties by being a "chum" to his staff, his board, and the public. Stern (57) has verbalized an ideal balance for which many educational leaders in the field are striving:

> True leadership exists only when the one who is being led... is made aware of the authority and the friendship on the part of the one who does the leading. Authority without charity means police and totalitarianism. If the authority should prove true guidance, it can be achieved only in an atmosphere of trust and friendship. (57, p.308)

An excellent review of the research by Gibb (19) covers the field of leadership up until 1954. Even at that time, Gibb was able to say,

> The most notable, and to date the most complete, researches directed to the determination of dimensions of leader behavior have been those of Hemphill and his colleagues in the Ohio State University Leadership Studies. These studies began by defining leadership as "behavior of an individual when he is directing the activities of a group toward a shared goal." (19, p.891)

The initial (32) dimensions of leader behavior postulated by the Ohio group were initiation, membership, representation, integration, organization, domination, communication, recognition and production. Questionnaires

were then prepared to measure each dimension and were applied to a large number of subjects. A factor analysis (30) was performed on the results. From this four factors were isolated: consideration, initiating structure, production emphasis and sensitivity (social awareness). The first two of these accounted for 73.2% of the variance. Attempts to strengthen the other two were unsuccessful (30) and Consideration and Initiating Structure were the two dimensions used in subsequent research by the Ohio group. Questionnaires using varying numbers of items were employed in a wide variety of situations. Fleishman (15) reported an early form with twenty-eight items on the Consideration dimension and twenty on the Initiating Structure dimension as having been found meaningful in an industrial situation for the objective description of the behavior of supervisors. Another form, containing twenty items on each dimension was used by Fleishman (16) for the purposes of comparing leadership expectations of workers, foremen and supervisors, for the foreman.

Halpin (26) reports research with the Leader Behavior Description Questionnaire in the Air Force showing that "effective" leadership is associated with high scores on both dimensions. In evaluating a commander's performance, his superiors perceive Initiating Structure as more important than Consideration and his subordinates perceive the two dimensions in reverse order of importance. In neither case is the dimension considered less important deemed to have a negative effect.

The use of a new form of the questionnaire with two groups of officially designated leaders, university educational administrators and

medium bombardment aircraft commanders is reported by Hemphill (31) and Halpin (27). In both cases there were significant correlations between reputation of the leaders and the LBDQ dimensions.

In a new study by Halpin (28) the LBDQ was administered to staff, school boards and superintendents concerning actual leader behavior of the superintendents and the leader behavior held to be ideal for a superintendent. In the "Ideal" descriptions, all groups indicated that the superintendent should be high on both dimensions.

Halpin (25) discussed the relationship between the dimensions, which are supposedly independent. He pointed out that high morale and good human relations within a group are not necessarily caused by the same behavior on the part of the leader as that required for the accomplishment of goals and high production. However, in every reported use of the LBDQ[4], there has been substantial correlation between the two dimensions, Consideration and Initiating Structure. If they are actually dimensions, that is independent, the correlations appearing in the studies must be due to one or more factors not related to the dimensions themselves. Three such factors come to mind. First, there is the possibly important influence of the respondent's desire to be consistent--the tendency to make similar appearing answers to all the items in the questionnaire. Since the items are not identified with the dimension with which they belong (indeed there is no indication on the questionnaire that there are dimensions) this tendency would be unusually strong with this instrument. Secondly the

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[4] Including adaptations used by McBeath (45) and Warren (60)

data which formed the basis for the factor analysis yielding the dimensions were obtained from descriptions of both leaders and non-leaders. In the use of the instrument, only persons designated as leaders have been described. The selection process by which these leaders obtained their positions, if they have any validity at all, almost guarantees that they do not represent the whole range of possibilities. Thirdly, the correlations between the two dimensions may be due to the halo effect of a global judgment by the respondents concerning the adequacy of the leader's behavior.

The series of apparently successful uses of the LBDQ, only some of which have been mentioned in the foregoing pages, encouraged Halpin to the point where, in 1958, he (29) felt justified in offering the instrument for use as an aid in evaluating administrators, provided that it is in charge of a psychologist. At this time he said:

> I think placement in the lower quadrant (by both his board members and his teachers) is sufficient evidence to justify very searching questions about a superintendent's qualifications for his job. In short, a modicum of skill on both dimensions is a prerequisite for effective leadership....(29, p.4)

This statement seems somewhat premature. Nowhere, in the extensive body of research using the instrument, is there a direct validation of it in terms of goal-achievement. It is true that the mass of evidence of indirect validation becomes more and more convincing. One of the possible values of this thesis is the presentation of a direct validation, though in a very limited setting.

Toward a Definition of Morale

Numerous authors have pointed out the lack of and need for definition of morale in such a way that it becomes a useful conceptualization yielding testable hypotheses, and several writers have made the attempt with varying degrees of success. Some approaches to defining morale are examined in this section and evaluated in terms of the criteria of adequacy, testability and rationality.

Writing at the beginning of the last decade, Zentner (64) was able to say that the term group morale has

> gained but little in stature and lucidity over the essentially metaphysical notions of European scholars; its present status is still largely that of a popular cliché.
>
> Taken as a whole, the available literature on morale fails to supply a body of clearly defined concepts and propositions which could be carried into the field for testing. (64, p.297)

This summary of the situation appears still to be fairly accurate, despite an enormous volume of writing on the subject of morale, and the use of the term in many studies. That many of these studies defined morale loosely or not at all cannot be denied; yet the importance of a sound, operational definition is demonstrated by the importance attached to the phenomenon (or phenomena) commonly called morale. The word is used, the concept is considered vital, but the meaning remains elusive--a dangerous paradox. For example, Elsbree (14), while admitting the difficulty of defining and measuring morale (difficulties which are inextricably connected), still says, "Staff morale is an important responsibility that rests largely in the hands of the board of education

and the administration." (14, p.262)

A number of writers have tried to articulate their definitions of morale by saying what it is not, by giving synonyms, or by listing the results or characteristics of "good" morale. Griffiths' (22) attempt at explanation of morale is not very useful:

> When observing the amount of work the teachers do, we should seek for answers to such questions as: Does the teacher give freely of his time to after-school activities? Does he resent coming to PTA meetings and similar school functions? Does he waste time at work loafing? Is there constant bickering among the staff members so that there is no co-operative effort toward common goals? These are signs or indications of low (sic) morale. (22, p.147)

Griffiths does point out, however, that the research in education which has restricted itself to examining conditions of job satisfaction has not been very successful. Burton and Brueckner's (7) definition of morale may have philosophical validity, but it is not phrased in a way to yield testable hypotheses:

> It is the inner confidence on the part of the individuals and a mutual faith among individuals which makes possible concerted group action. It is a unity of understanding, sympathy, and purpose within the group. (7, p.555)

Small (55) is one of a number offering long, disjointed lists of qualities or behaviors evidenced by individuals or groups and which are said to be indicative of morale.

Turning toward other work dealing with the problem at hand, it seems profitable for the purposes of discussion to adopt a distinction by Bernberg (3) between two related streams in the river of writing on

morale. These two will be referred to here as the Roethlisberger position and the Barnard position. This labeling is not intended to imply sole responsibility, but the names used are outstanding ones in the two schools of thought.

The Roethlisberger position arose, of course, from the famous Hawthorne studies. Roethlisberger (50) himself comments that the group of researchers, under the general direction of Mayo, discovered that "sentiment, group feeling, morale (call it what you will) is an extremely important factor in...productivity." (50, p.26) Krech and Crutchfield (38), adhering to this school of thought which regards morale as solidarity or esprit de corps, elaborated a theory of six determiners of morale: positive goals, satisfaction of accessory needs, sense of advance toward goals, level of aspiration and achievement, time perspective, and feelings of solidarity, identification and involvement. Miller and Form (49) however, criticize the conception of the group inherent in the Roethlisberger position. They maintain that the Hawthorne researchers mistakenly felt it necessary to study each individual to get a picture of the group. "They ended where they should have begun--with a hypothesis that individuals reflect the previous existence of a group." (49, p.276) While this observation is undoubtedly correct, it does not detract from the significance of the contribution made to group study by Mayo and his associates.

The Barnard position is that morale is the degree of acceptance of formal organization by members of a group. This position is not unknown in education. The 1955 AASA yearbook offers some revealing

thoughts on the question. There morale is defined from the viewpoint of administration as

> a disposition on the part of persons engaged in an enterprise to behave in ways which contribute to the purposes for which the enterprise exists....It manifests itself in a tendency to subordinate personal considerations to the purposes of the enterprise, to work as a member of a team for the accomplishment of common goals, and to derive satisfaction from achievements of the organization...(1, p.15)

LaPiere (39) distinguishes between situational morale and group morale. He defines the latter as the prevailing state of mind of the members of a group regarding the group's future, and adds the useful suggestion that group morale is the collective parallel to the state of mind of the individual concerning his personal future.

Hemphill and Westie (33) made an attempt to identify measurable group dimensions. This was related to the previously mentioned work with leader behavior dimensions (*supra*, p.30 *et seq.*). They listed the following as possible dimensions: autonomy, control, flexibility, hedonic tone, homogeneity, intimacy, participation, permeability, polarization, potency, size, stability, stratification and viscidity. It is disappointing to report that no significant relationships were found between these dimensions and leadership effectiveness of college departments or ratings of productivity of work units in an insurance company (31, 54). Information on the correlations among the fourteen dimensions of Hemphill and Westie reveals a cluster (homogeneity, hedonic tone, intimacy, participation, potency, polarization and viscidity) the definitions of which correspond quite closely to the meaning of cohesiveness

as used in this study. There is, however, no similar cluster that would correspond to induction. Rush (52) reports a factor analysis of Hemphill's dimensions which yielded five new dimensions: intimacy, harmony, control, stratification and procedural clarity. Apparently no additional work has been done to relate these new dimensions to other variables such as goal accomplishment.

Leighton (41) offers a concise definition of morale as "the capacity of a group of people to pull together consistently in pursuit of a common goal." (41, p.5)

Probably the closest approach to a rigid theoretical definition of morale is that offered by the Midwest Administration Center (47):

> Morale is a group phenomenon which depends upon the extent to which (1) group structure and expectations of behavior are rationally contrived for goal attainment, and (2) group members have a feeling of group belongingness and identification with group goals. (47, p.3)

It is believed that these last two definitions, those of Leighton and of the Midwest Center, are entirely compatible with each other, though the former is couched in the language of the man in the street and the latter in the idiom of social psychology. The definition used in this study is derived from them: morale in an organization is a group phenomenon consisting of the feelings of belongingness of group members and the degree of congruence of members' goals with the goals of the organization.

Summary and Conclusion

The weight of evidence offered by research on the relationship between morale and productivity is that, although there is a relationship

between the two, it is neither direct nor very high. In the fields of business, industry and education contradictory results are reported. Particularly in education, this relationship has not been sufficiently tested, nor with sufficient precision, to allow the acceptance of a definite stand one way or the other.

Much of the contradictory nature of the research reviewed in this section stems from lack of direct measurement of productivity, from lack of careful definition of the term morale, and from confusion between the concepts of morale and job satisfaction.

The relationship between morale and leader behavior is also not clear-cut in the experiments under consideration. There seems to emerge, however, the general conclusion that if the status leader of a formal group behaves in the way in which his followers expect him to behave, morale will be high. It is perhaps logical to conclude that the apparent contradictions between studies can be explained in terms of this conclusion; certainly none of them specifically contradicts it.

As in the case of the other two relationships dealt with above, that between leader behavior and productivity has not had sufficient testing with direct measures of both variables. Of the studies reported, there is a definite trend in support of correlation between the two factors, but there is sufficient conflicting evidence to leave a reasonable doubt. In the case of the Leader Behavior Description Questionnaire, several indirect indices of productivity correlated well with the dimensions measured, which fact is, in turn, a partial validation

of the instrument itself.

In general, the assumptions that leader behavior affects morale and that morale affects productivity cannot be taken as either proven or disproven, though the weight of evidence appears to be in favor, particularly for the former of the two. A relationship between leader behavior and productivity may be asserted with considerably more confidence, though insufficient evidence requires a residue of caution.

The main trends in the study of leadership have been sketched and the most promising approach, that of measuring leader behavior, has been examined in some detail as it has been applied in the development and use of the Leader Behavior Description Questionnaire.

Finally, the main definitions of morale found in the literature have been noted and evaluated. It was concluded that the most appropriate and useful definitions imply that morale is not unidimensional, but involves, at least, questions of human relations and of goal orientation.

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CHAPTER III

THE KEELER SCALE FOR THE COHESIVENESS AND INDUCTION OF TEACHING STAFFS

Selection of Items

Bearing in mind the definitions of cohesiveness and induction presented in the preceding chapter, a number of items that might be expected to measure each dimension but which would not be expected to measure the other dimension were formulated.

It immediately became apparent, considering both the definitions of the dimensions and practical application, that items might be expressed in two ways: first, where the respondent is asked to describe his own goal orientation and belongingness and, second, where he is asked to describe the induction and cohesiveness of the group of which he is a member. In order to allow the maximum number of chances of arriving at serviceable items, therefore, two versions of KESCITS, referred to herein as version A (see Appendix "B") and version B (see Appendix "C") were constructed, version A taking the self-description approach and version B taking the group description approach. Each of these approaches has its own disadvantages, arising chiefly from the intimate nature of some of the items: version A would be more subject to the usual errors of self-evaluation, while Version B would ask the respondent to rate behaviors and attitudes of his fellow staff members that might be unknown to him. In addition, it could be argued logically that Induction scores obtained with

version B might be either significantly more accurate or significantly less honest for staffs that were high in cohesiveness than for those staffs in which cohesiveness was low.

Form of Items and Responses

Each item consisted of an incomplete statement, with five words or phrases for completion, lettered a. to e. in either ascending or descending order of the units involved. The instructions called for circling the letter of the answer selected by the respondent. Each questionnaire was scored according to the values given in Table I, page 49. In version A, items one to ten inclusive are summed to yield a score for cohesiveness and items eleven to twenty are summed to yield a score for induction. In version B, items one to seven are scored on the cohesiveness dimension and items eight to sixteen are scored on the induction dimension. The individual scores on each dimension are then summed and divided by the number in the group to obtain group scores. These methods involved a number of assumptions which were not tested, the most important ones being the assumption of equal value for each item and the assumption of equal intervals between responses for a given item.

Pilot Study: Sample

Permission was given by officials of the Edmonton Public School Board for the investigator to visit eight specified schools in the city for the purpose of a pilot study to validate KESCITS. Arrangements were made by the investigator with each principal to meet with the

TABLE I

SCORING KEY FOR KESCITS VERSION A (TWENTY ITEMS) AND VERSION B (SIXTEEN ITEMS)

Item	Responses	a	b	c	d	e
1		4	3	2	1	0
2		0	1	2	3	4
3		4	3	2	1	0
4		0	1	2	3	4
5		4	3	2	1	0
6		4	3	2	1	0
7		0	1	2	3	4
8		4	3	2	1	0
9		4	3	2	1	0
10		4	3	2	1	0
11		0	1	2	3	4
12		4	3	2	1	0
13		4	3	2	1	0
14		0	1	2	3	4
15		4	3	2	1	0
16		0	1	2	3	4
17		4	3	2	1	0
18		4	3	2	1	0
19		0	1	2	3	4
20		4	3	2	1	0

staff. The first visit was made in mid-March and the remainder in the first half of April, 1959. Size of staff ranged from nine to twenty. Seven of the schools were Elementary and one was a Junior High. There were absences in some schools: one teacher was absent in each of three schools and four teachers were absent in another school. In some cases the meeting was held during the noon hour, in others after school, and in others during a regular or special staff meeting in school hours. It is assumed that the time of the meeting, and the number of absences, did not materially affect the scores for the schools. Respondents were assured of anonymity, the forms being identified by school only.

Pilot Study: Criteria

Officials of the Edmonton Public School Board were requested to make estimates of the induction and cohesiveness of each staff in the sample, after having been provided with the definitions of those terms used by the investigator. They were reluctant to do so, and it was agreed that the investigator would make his own estimates after having visited the schools. It is the opinion of the investigator that it is relatively easy to assess the cohesiveness of a staff and relatively difficult to assess its induction. The results of the pilot study, using the investigator's estimate of induction, proved unsatisfactory, and the officials of the School Board were again approached and agreed to rank the schools on this variable. Therefore the only criterion for cohesiveness was the investigator's own opinion while there were two criteria for induction: the investigator's opinion and the joint

opinion of two supervisory officials of the School Board. Each of the criteria was expressed as a rank order, and rank order correlations were used exclusively in the analysis of the data.

Pilot Study: Analysis

Table II, page 52, shows the rank-order correlations between scores and criterion, investigator's estimate, for each dimension and for each version of the instrument, and the approximate probability of obtaining correlations of this magnitude. Also given are parallel data for a composite rank order for each dimension, derived by taking the mean of the ranks for each school on the two versions. The purpose of such a composite is to note the effect of what amounts to lengthening the instrument. Both versions gave significant correlations, version A at the 1% level and version B at the 2% level, for the cohesiveness dimension. For the induction dimension, however, neither version yielded a significant correlation, though in both instances the correlation was positive.

Table III, page 53, shows the rank order correlations between the induction scores from each form and the joint estimate by two Edmonton Public School Board Officials. Both of these are negative. Also shown is the correlation between the two criteria, which does not approach significance at an acceptable level.

Both Table II and Table III note correlations with composite rank orders higher than those for either version independently.

Table IV, page 54, shows the correlations between versions and

TABLE II

RANK ORDER CORRELATIONS BETWEEN COHESIVENESS AND INDUCTION SCORES AND THE CRITERION (INVESTIGATOR'S ESTIMATE) (N = 8)

		r'	Significance level
Cohesiveness:	Version A	.88	.01
	Version B	.76	.02
	Composite	.93	.01
Induction:	Version A	.14	not significant
	Version B	.33	not significant
	Composite	.38	not significant

TABLE III

RANK ORDER CORRELATIONS BETWEEN THE CRITERION (SCHOOL BOARD OFFICIALS' ESTIMATE) AND EACH OF INDUCTION AND THE INVESTIGATOR'S ESTIMATE (N = 8)

		r'	Significance level
Induction:	Version A	-.33	not significant
	Version B	-.10	not significant
	Composite	-.06	not significant
Investigator's estimate		.40	not significant

TABLE IV

RANK ORDER CORRELATIONS BETWEEN VERSIONS A AND B AND BETWEEN DIMENSIONS
(APPROXIMATE SIGNIFICANCE LEVELS IN BRACKETS)
(N = 8)

	Cohesiveness A	Induction B	Induction A
Cohesiveness B	.54 (.08)	.14 (not sig.)	.22 (not sig.)
Induction A	.21 (not sig.)	.38 (not sig.)	-
Induction B	.33 (not sig.)	-	

between dimensions. None of the correlations between Induction and Cohesiveness was significant, which supports the contention that these two dimensions are independent. However, in light of the indications of low validity of the induction measure, this finding is not very valuable. The correlation between versions A and B on Cohesiveness is not significant. The correlation between versions A and B on Induction is also not significant.

Pilot Study: Reliability

Split-half reliability coefficients were calculated for each dimension and for each version, and reliabilities for the whole scales were estimated by the Spearman-Brown prophecy formula. The estimated reliabilities were as follows: Cohesiveness A .42, Cohesiveness B .81, Induction A .47 and Induction B .64. These data, as well as the split-half figures, are given in Table V, page 56. It will be noted that the figures for version B are appreciably higher than those for Version A. This is to be expected since version A describes the individual and is therefore subject to greater variability than version B which describes the group.

Second Validation Procedure (Induction)

At this stage, a second attempt was made to obtain some validation of the induction portion of the instrument. This was based on the assumption that if the instrument (version A) could be shown to differentiate among individuals, it could also be expected to differentiate among staffs. The principal of a single school was

TABLE V

SPLIT-HALF AND ESTIMATED WHOLE TEST RELIABILITIES OF KESCITS, VERSION A AND VERSION B (N = 89) AND OF VERSION A INDUCTION (N = 6)

	Split-half	Whole test
Cohesiveness, Version A	.26	.42
Version B	.67	.81
Induction, Version A (N = 89)	.31	.47
Version B	.47	.64
Induction, Version A (N = 6)	.42	.59

approached and agreed to the following procedure: each teacher completed questions eleven to twenty of version A, and the principal ranked the six teachers on induction, as defined for him by the investigator. For this test run, it was necessary to identify the respondents. It is unfortunate that there were only six members of the staff, since the rank order correlation coefficients required to reach a significant level are very high with this small number. The results of the rank order correlations between the total score and between each question and the principal's ranking are shown in Table VI, page 58. It will be noted that the total score coefficient was .71, which, although high, fails of significance.

Reliability of the scale was estimated by the same procedure as before. The figure obtained, .59, while not unreasonable in comparison with those obtained from the first pilot study, may not be very meaningful because of the small number of cases: six. These data are given in Table V, page 56.

Summary of Attempts to Validate the Initial Forms of KESCITS

The Cohesiveness dimension was compared with the criterion of the investigator's estimate of cohesiveness in eight schools. The rank order coefficient of correlation was considered good on both versions, version A being the better of the two.

The Induction dimension was compared with three criteria: first, with the investigator's estimate of induction in eight schools; second, with a joint estimate by two officials of the school system

TABLE VI

RANK ORDER CORRELATIONS BETWEEN INDUCTION SCORES (INDIVIDUAL) AND THE CRITERION, PRINCIPAL'S ESTIMATE (N = 6)

Item	r'	Approximate level of significance
11	.41	not significant
12	-.19	not significant
13	.16	not significant
14	.71	.08
15	-.14	not significant
16	-.14	not significant
17	-.15	not significant
18	.80	.05
19	.50	not significant
20	.84	.02
Total	.71	.08

of induction in the same eight schools; third with the estimate by a school principal of the induction of six members of his staff. The rank order coefficients of correlation in the first instance were positive and not significant for both version A and version B. In the second instance, rank order correlation coefficients were negative and not significant for both versions. In the third instance, the correlation (only version A was used) was high and positive, but fell short of significance at an acceptable level.

Revision of KESCITS: The Time Element

The pilot study took considerably more time to arrange and complete than had been anticipated by the investigator, and appointments had already been scheduled for using the instrument with schools for the main study. This was unfortunate, not only in that it left no time for testing a revision of KESCITS, but also since there was very little time for a careful revision to be made. Item analysis was therefore not used. The three bases on which the revision was made were as follows: the opinion of the investigator of the degree to which items fitted the theoretical definitions of the dimensions they were assumed to measure, the verbal and observed reactions and opinions of the teachers who had co-operated in the pilot study, and visual inspection of the data, with attention to discrimination of the items and approximate conformity to the direction of the criterion of the investigator's estimate.

Revision of KESCITS: Procedure

A decision to base the final version almost exclusively on

the items used in version A was made on the basis of the superior results of that form on the Cohesiveness dimension and on the expressed preference for it of the staffs of seven of the eight schools participating in the pilot study.

Items number 2, 4, 6, 8, 12, 14, 15, 16, 18, 19 were retained unchanged from version A. All of these except number 18 had positive correlations with the criterion being used, though some were very low. Item 1 of version A was retained with a slight change in the wording of the item. Item 10 of version A was kept, with a change in the responses offered designed to clarify their meanings. Items number 3, 9, 12, and 17 of version A, and item 6 of version B, were retained with changes in the possible responses, designed to make them more discriminating. These items had had low correlations with the criterion.

Item number 14 of version A was retained in the questionnaire, but was not scored. Many of the teachers participating pointed out to the investigator that this item (number of courses taken since obtaining the first permanent licence) was subject to contamination from a number of sources unrelated to the variable being measured: age, irregularities in licencing regulations, amount of training obtained before beginning to teach, misinterpretation of the word "courses", and possibly others.

The final form of KESCITS as used in the larger study is presented in full as Appendix "D".

Validity Evidence Arising in Connection with the Main Study

Investigator's Estimate. The forty-two schools used in the main study were visited by either the investigator (thirty-four schools) or his representative, a graduate student in educational administration, (eight schools). These two persons made estimates of cohesiveness and induction for each school on a three-point scale. No differentiation is made in the following discussion between the two raters, and it is assumed that their ratings are fully comparable.

For the revised instrument the scoring was as follows: items 1 to 9 were summed for each individual, averaged for the staff, and doubled, the result, to the nearest whole number, being regarded as the Cohesiveness score for the staff; a similar procedure was followed for items 10 to 18, except item 13, which was not scored, to give an Induction score for each staff. Table VII, page 62, gives the scoring key.

Difficulty was experienced in discovering an appropriate statistic to measure the degree of relationship between the continuous measure (KESCITS) and the trichotomous measure (investigator's estimate) of the same variable. Measures considered were biserial, tetrachoric and product-moment correlation coefficients, chi square, and Fisher's Exact Probability test. Results of calculations with each of these are shown in Table VIII, page 63. In each case either the assumptions of the statistic involved could not be met entirely, or else the statistic did not make use of all the data available.

TABLE VII

SCORING KEY FOR KESCITS, FINAL FORM

Item	Responses	a	b	c	d	e
1		4	3	2	1	0
2		0	1	2	3	4
3		4	3	2	1	0
4		0	1	2	3	4
5		4	3	2	1	0
6		4	3	2	1	0
7		4	3	2	1	0
8		4	3	2	1	0
9		4	3	2	1	0
10		0	1	2	3	4
11		4	3	2	1	0
12		4	3	2	1	0
13		--------- not scored ---------				
14		4	3	2	1	0
15		0	1	2	3	4
16		4	3	2	1	0
17		4	3	2	1	0
18		0	1	2	3	4

TABLE VIII

SUMMARY OF STATISTICAL COMPARISON OF KESCITS SCORES WITH THE CRITERION, INVESTIGATOR'S ESTIMATE
(N = 42)

	Cohesiveness	Induction
Product-moment correlation coefficient	.52	.24
significance level	.01	not significant
Biserial correlation coefficient	.56	.25
Tetrachoric correlation coefficient	.69	.23
Chi Square	14.48	3.91
significance level	.01	not significant
Fisher's Exact Probability (extreme cells)	.007	.165

Despite the objections to the several statistics, there was an extremely large measure of agreement among them, and collectively, if not individually, they may certainly be taken as representing the degree of relationship present.

The Induction scores again failed to show a statistically significant relationship with the criterion.

With all the statistics used, the cohesiveness dimension appeared to be significantly related to the criterion at the .01 level of confidence.

Estimates by Superintendents. The forty-two schools of the main study were in thirty different superintendencies with a maximum of three schools in any one. After the data had been collected from these schools by personal visits, a letter (Appendix "E") was sent to each superintendent asking him to rate each of the participating schools in his area on the three variables: productivity, staff cohesiveness, and staff induction. Each of these was defined in considerably simpler terms than those used in this paper, but without changing the intent of the definitions. The ratings were to be made on a five point scale as follows: A - much above average, B - above average, C - average, D - below average, E - much below average. The comparison group for the ratings was specified as all the schools with which the rater had been in professional contact during his career as teacher, vice-principal, or superintendent.

Twenty-seven of the thirty superintendents (90%) returned the rating sheets, covering thirty-eight of the forty-two schools (90.5%)

in the study. From an inspection of the 114 ratings made, it is obvious that many of the superintendents, in effect, used only a three-point scale. There are only four ratings of A (3.5%) and one rating of E (0.9%). There were sixteen ratings of D (14%) 41 ratings of B (36%) and 52 ratings of C (45.5%).

Although there are obvious objections to taking ratings made by twenty-seven different persons as representing a single criterion, it was felt that such a procedure might yet offer valuable data.

Two statistics only were used to measure the relationship between superintendents' ratings and KESCITS scores: the product-moment correlation coefficient and Fisher's test of exact probability applied to the four extreme cells of a three-by-three-fold table. These data are summarized in Table IX, page 66. The now familiar pattern of a significant relationship between the criterion and the Cohesiveness measure and a non-significant but positive relationship between the criterion and the Induction measure again appears.

Construct Validity

Two quotations establish the need of considering the construct validity of KESCITS and outline the process to be followed:

> Construct validity must be investigated whenever no criterion or universe of content is accepted as entirely adequate to define the quality to be measured (1, p.282)
>
> To examine construct validity requires both logical and empirical attack....It is ordinarily necessary to evaluate construct validity by integrating evidence from many different sources (2, p.14)

TABLE IX

SUMMARY OF STATISTICAL COMPARISON OF KESCITS SCORES WITH THE CRITERION, SUPERINTENDENTS' ESTIMATES (N = 38)

	Cohesiveness	Induction
Product-moment		
correlation coefficient	.299	.162
significance level	.05	not significant
Fisher's Exact Probability (extreme cells)	.027	.054

Theoretical considerations outlined in Chapter II (supra, page 33 et seq.) led to the conclusion that morale is not a unitary concept, but that it involves, at least, two major components: interpersonal feelings among members of a group and degree of identification or congruence of group members' goals with organizational goals. Each of these components, tentatively called a dimension, was further defined: the first, cohesiveness of a group, is defined as the sum of the belongingness of its members; belongingness, in turn, is defined as the sum of the forces tending to draw the individual to the group minus the sum of the forces tending to draw him away. The second, induction of a group, is defined as the sum of the goal orientation of its members; goal orientation, in turn, is defined as the extent to which the goals of the individual approach congruency with the goals of the organization.

Two preliminary forms, Version A (requiring answers by the individual about himself) and Version B (requiring answers by the individual about the group as a whole), were constructed. Items were chosen that seemed logically to bear on the dimension to which they were assigned but to have little bearing on the other dimension. Items constructed to measure cohesiveness dealt with such things as the proportion of the staff preferred as companions at social gatherings, frequency and amount of time spent talking to other staff members on non-school topics, common interests and shared non-school activities of staff members and feelings of friendship for and of other staff members. Items constructed to measure induction dealt with such

things as interest in teaching, amount of time spent on school work and on extra-curricular activities, amount of professional reading done, frequency of efforts to obtain advice on improving teaching effectiveness, courses taken to improve teaching efficiency, attendance at Home and School (P.T.A.) meetings and willingness to attend staff meetings and to work on staff committees.

Revision was undertaken partly on the basis of comments made by subjects after they had completed the forms and understood the objectives of the instrument; these comments may be classified as expert opinion. Most items were retained, although there were some changes in the possible responses.

The measure of internal consistency reported below (*infra*, page 66) constitutes a small piece of additional evidence of construct validity of the final form of the instrument.

While the construct validity of the instrument appears to be adequate for its use in the present exploratory study, it cannot be considered entirely satisfactory for all purposes.

The study reported in this thesis is, among other things, an empirical test of the construct validity of KESCITS, in that it explores relationships between the constructs involved in the instrument and other constructs and these relationships have been hypothesized from a theoretical arrangement of the constructs involved.

Reliability Evidence Arising from the Main Study

The final version of KESCITS, used in the main study, was examined for internal consistency by calculating the split-half reliability and using the Spearman-Brown formula to estimate the reliability of the whole test. There were 403 individual forms completed. Of these, twenty-nine were excluded because one or more items had not been completed. The whole test estimates were .67 for Cohesiveness and .72 for Induction. While not high, these reliabilities are considered satisfactory for the purpose for which the instrument was designed. The data are given in Table X, page 70.

As an additional test of the dependability of the instrument, simple analysis of variance was employed as an estimate of the consistency with which members of a staff responded. For each dimension the between-group variance exceeded the within-group variance, yielding F ratios significant at the .05 level. Table XI, page 71, gives the pertinent figures.

Summary

The results of the work attempting to demonstrate the concurrent validity of KESCITS are mixed and inconclusive. While significant correlations do not necessarily indicate high validity, there has been established some degree of confidence in the validity of the Cohesiveness measure. This is not the case with respect to the Induction measure. Although the failure to find significant correlations for the Induction dimension may be a criticism of either the instrument or the criteria, concurrent validity was not demonstrated.

TABLE X

SPLIT-HALF AND ESTIMATED WHOLE TEST RELIABILITIES OF KESCITS (FINAL VERSION) DIMENSIONS (N = 374)

	Split-half	Whole test
Cohesiveness	.50	.67
Induction	.56	.72

TABLE XI

ANALYSIS OF VARIANCE OF KESCITS (FINAL FORM)
(N = 395)

Cohesiveness

Source	df	Sum of squares	Variance
Between	41	1588	38.7
Within	353	9124	25.8
Total	394	10712	

F = 1.50, significant at .05*

- -

Induction

Source	df	Sum of squares	Variance
Between	41	966	23.6
Within	353	5083	14.4
Total	394	6049	

F = 1.64, significant at .05*

*F required for significance at .05, with 40 and 200 degrees of freedom = 1.45.

The validity of both measures rests to a large extent on their construct validity. The use of the instrument in the main study, reported in the following chapters, constitutes a further test of its construct validity.

Internal consistency of the final version of KESCITS was considered adequate for the purpose for which it was used. Analysis of variance indicated greater consistency among members of a staff than among different staffs in completing the instrument.

REFERENCES FOR CHAPTER III

(1) Cronbach, Lee J. and Paul E. Meehl. "Construct Validity in Psychological Tests," Psychological Bulletin, LII:4 (July, 1955). pp.281-302.

(2) Technical Recommendations for Psychological Tests and Diagnostic Techniques. Washington, D.C.: American Psychological Association, 1954. 38 pp.

CHAPTER IV

COLLECTION OF DATA

Alberta Teachers' Association Clearance

Because of the nature of the study in which teachers were to be asked to describe the leader behavior of their principals, the outline of the study was submitted to the Alberta Teachers' Association for their approval. Clearance of the study from their point of view was confirmed by letter on April 8, 1959. A copy of this letter is included in Appendix "E".

Selection of Sample

In order to test the hypotheses, a sample of schools was selected. The population from which these schools were chosen was defined by the following limitations:

(1) Location: only schools which are neither isolated, nor parts of a large urban system and which were located in the province of Alberta were considered. "Isolation", in this context, was defined as more than eight hours driving time from Edmonton or Calgary. "Large urban system" was defined as any system having more than thirty-five full-time grade twelve students. These definitions are, of course, purely arbitrary.

(2) Size and scope: only public and separate schools, having from five to seventeen classes and offering grades one to twelve inclusive were chosen.

(3) Tenure of Principal: only schools having had the same principal for at least three school years, including that in which the study was conducted, were chosen.

At the time of the study, there were one hundred seventy-nine schools of this description in the province. A sample of forty-six schools was selected on the basis of Productivity, twenty-three schools above the mean on Productivity and twenty-three below. The number was determined in large measure by the amount of time available for visiting these schools. It was expected that about ten weeks would be available for this purpose, and that, in view of the geographical dispersement of the sample, four schools per week was a reasonable estimate for rate of visitation. It was not anticipated that all schools would agree to participate in the study.

Matching of Groups

In order to minimize, as far as possible, the chances of an effect on the findings because of extraneous variables, an attempt was made to select schools of high and low productivity in such a manner that the two groups did not differ significantly in size of school, training of the principals, or experience of the principals; in the course of the study, information was obtained directly from the staffs to enable the comparison of the two groups on per cent male staff, per cent single staff, average number of days absent, average teacher training, average teacher experience and average tenure on present staff. Table XII, page 76, gives t values for these nine factors for the schools participating in

TABLE XII

VALUES OF t FOR NINE VARIABLES FOR HIGH (N = 20) AND LOW (N = 22) PRODUCTIVITY GROUPS

Factor	t values**
Average experience of principals	.6027*
Average training of principals	.3074
Average experience of teachers	.3657*
Average training of teachers	.3226
Average tenure of teachers	.1489
Average days absent (teachers)	.1324
Per cent male staff	.7692*
Per cent single staff	1.2423
Size of staff	.3333*

*High Productivity group has the higher mean.

**Value of t needed for significance at the 5% level is 2.021.

the study, for the two productivity groups on the basis of the Productivity measure. None of the t's approaches significance, and it may be assumed that the two groups do not differ significantly from one another on these nine factors.

In the course of visiting the schools, the investigator made non-quantitative estimates of socio-economic status of the communities. On the basis of these estimates, there seems to be no consistent or substantial differences between those schools in the low productivity group and those in the high productivity group.

The possible effect on the findings of a principal's teaching a large portion of the grade nine work (which would have been an extraneous uncontrolled variable) was considered, but it was not possible to get exact data on this matter in advance. Information obtained during visits to the schools showed that most of the principals did not teach any courses in grade nine and that none taught as much as half the grade nine work.

Participation

A letter requesting the participation of the forty-six schools selected was sent to the principal of each school, explaining to him or her the purpose of the study and the amount of time needed with the staff to complete the visit. (Appendix "E") Enclosed was a reply card. There were replies from forty principals (87%); of these there

were four refusals, one qualified agreement, and thirty-five unqualified agreements to participate. Follow-up letters (Appendix "E") were sent to nine principals who either had refused to participate or had failed to reply. One of the principals who had refused had been so emphatic that no follow-up letter was sent. Seven follow-up letters brought replies: two of those who had previously refused now agreed to participate and one reiterated his refusal; four replies from those who had previously not answered were agreements to participate; two principals who had ignored the first letter treated the second one in the same manner. This made a total of forty-two schools agreeing to participate, 91.3% of those asked. This is considered to be a very high rate of participation. This data is summarized in Table XIII, page 79.

Following the original letters to principals, a letter explaining the study briefly was sent to each superintendent in whose division or county were located one or more schools in the sample. The sole purpose of this letter was for information of the superintendents.

Visiting the Schools

The present writer visited thirty-four of the schools in the sample and administered the two instruments to each staff. The remaining eight schools were visited by Mr. Arthur G. McBeath, at that time a graduate student in the Division of Educational Administration at the University of Alberta. A standardized method of presentation of the study and the instruments to the staff was used

TABLE XIII

RESPONSES FROM FORTY-SIX SCHOOLS TO A REQUEST TO PARTICIPATE IN THE STUDY AND TO FOLLOW-UP REQUEST

	Number	Per Cent
Schools answering first letter	40	87
Schools not answering first letter	6	13
Schools agreeing to participate	36	78.3
Schools refusing to participate	4	8.7
Follow-up letters sent	9	
Schools agreeing that had previously refused	2	4.4
Schools agreeing that had previously not answered	4	8.7
Schools refusing that had previously refused	1	2.2
Schools not answering that had previously not answered	2	4.4
Total schools not answering	2	4.4
Total schools refusing to participate	2	4.4
Total schools agreeing to participate	42	91.3

for all schools, and it is assumed that the results would have been the same if a single person had made all the visits.

In all but a few cases the investigator was introduced to the whole staff by the principal. Acting on a previous request from the investigator, the principal then withdrew from the meeting. In four cases the principal was absent from the school at the time of the visit, and the vice-principal performed the introduction. In all cases the reception of the investigator by the principal was cordial, and in most cases that by the staff was also good. There were a number of schools in which one or more members of the staff were absent. In no case did less than seventy-five per cent of the staff complete the questionnaire forms. Of the absences, almost all were due to sickness, although two teachers in one school and one in each of two others absented themselves from the staff meeting because they did not wish to participate in the study. In five schools the staff met in two groups for reasons arising from the local situation, while in the rest the whole staff met in a single group. In general, thirty minutes was sufficient to complete the essential parts of the meeting with the staff, though in most instances the investigator spent an hour or more in the school.

Computation of Scores

For each dimension of the Leader Behavior Description Questionnaire the individual forms were scored according to the manual, totalled and averaged. All completed forms were used

except those in which the respondent failed to answer more than two items on one of the dimensions. This occurred in eight cases, one in each of eight schools. In cases where a respondent failed to mark one or two items on a dimension, the total was prorated to the same base as if he had answered all questions. The average was taken to the nearest whole number for the dimension score for that school.

For each dimension of KESCITS, the individual forms were scored according to the key (Table VII, page 62), totalled and averaged. The same provisions as for the LBDQ were made in cases where respondents failed to answer one or more items. There was only one case of a respondent failing to answer as many as three items on one dimension. The average was doubled and rounded to the nearest whole number for the dimension score for that school.

Confoundment

In determining scores for schools on the LBDQ and KESCITS, it would have been preferable to use a separate group of staff members for each dimension or at least for each instrument, in order to lessen the possible effect of confoundment. Because of the small size of the staffs involved, four to nineteen, this was not feasible. For the LBDQ, a minimum of five respondents is considered necessary. KESCITS, with its lower reliability, should have more if possible. Furthermore, the definitions of the KESCITS dimensions imply the necessity of using all members' responses in obtaining staff scores.

The problem of confoundment does not affect the treatment of a relationship between Productivity and any one of the other measures, since the Productivity scores were obtained independently of the others.

CHAPTER V

RESULTS, ANALYSIS AND DISCUSSION

I. THE PRODUCTIVITY MEASURE

An index of productivity was calculated in the manner outlined in Chapter I (supra, page 6 et seq.) on the basis of 1959 examination data, which became available only after the rest of the data for the study had been gathered. Since it was the morale of the 1959 staffs and their perception of the leader behavior of the principals in 1959 that were measured, the 1959 examination results are the only ones on which an appropriate productivity index for this study may be calculated. The staffs of the type of school used in the study vary considerably from one year to the next[5], and therefore presumably, staff morale and staff perception of the leader behavior of the principal would also be likely to vary. This is quite apart from normal variations in morale that might be found in a group of stable membership and from normal variations that might occur in actual leader behavior of a given individual holding the office of principal.

Early Measures of Productivity

An index of productivity on the basis of 1957 and 1958 examination data had been calculated earlier. A tentative analysis

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[5] The average for all schools of average staff tenure was only 2.7 years, and the range among schools was from 0.6 to 7.7 years. In those schools where this figure was fairly high, it was invariably because of the extremely long tenure of one, two or three members of the staff.

of results involving this index showed nothing of significance, as might have been expected. The purpose served in calculating the index was determining the feasibility of using this type of index as a measure of productivity.

An estimate of productivity of most of the schools used in the study was also obtained from ratings made by superintendents of the schools. Information and analysis concerning these two early measures of productivity and a comparison of them with the 1959 productivity index are contained in Appendix F, page 173.

Distribution of the Productivity Scores

It has been mentioned that for the purposes of the analysis, the schools were divided into two groups on the basis of the Productivity scores, with a "high" group of twenty and a "low" group of twenty-two. It should be emphasized that these terms, high and low, are only relative to the fixed mean of the population from which the sample was drawn. In actuality, the distribution of the P scores of the sample closely resembled that of the population from which it was drawn. A chi square value for the difference calculated on a four-by-two table, was found to be 2.491 which is not significant. Also worthy of note is the fact that the sample did not differ from normal curve distribution; the chi square value in this case was .751.

II. RELATIONSHIP AMONG VARIABLES

Intercorrelation Among Variables

Results. Pearson's product-moment correlation for each pair of variables was calculated[6]. These are given in Table XIV, page 86. Correlations between Productivity and Consideration (C) and Initiating Structure (S) were significant at the .01 level, and those between Productivity and Cohesiveness (CO) and Induction (I) were significant at the .05 level. Consideration and Initiating Structure correlated with one another at a very high level, in fact the highest coefficient of any in this group. Considerably lower than this, but still significant at the .01 level, was the correlation between Cohesiveness and Induction. The only other correlation of this group which was significant was that between Initiating Structure and Cohesiveness.

Discussion. The significance of the correlations between Productivity and each of the other variables bears out two of the basic hypotheses, that leader behavior is related to productivity and that staff morale is also related to productivity. The correlation between the two dimensions of the LBDQ was higher than

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[6] Although, throughout the analysis and discussion which follows, the LBDQ and KESCITS scores are submitted to the same statistical treatments, it is to be understood that KESCITS is in an early stage of development, with validity and reliability largely undetermined, whereas the LBDQ is a mature instrument backed up by extensive use in research, including considerable data on reliability and validity.

TABLE XIV

CORRELATION MATRIX FOR PRODUCTIVITY, CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS AND INDUCTION

(N = 42)

	P	C	S	CO	I
P	--	.416**	.420**	.279*	.300*
C	.416**	--	.635**	.123	.097
S	.420**	.635**	--	.279*	.096
CO	.279*	.123	.279*	--	.396**
I	.300*	.097	.096	.396**	--

* significant at the .05 level

** significant at the .01 level

that found in other studies using the instrument (2, 3, 5, 7). While on the surface it might appear that correlations between the two variables measured by the same instrument, either the LBDQ or KESCITS, might lead one to discard the notion that they are dimensions, it can also be argued with reason that a considerable part of the correlation is due to halo effect; that this effect might be greater in the LBDQ than in KESCITS could be attributed to differences in construction of the two instruments: the latter separates the items into two groups, though it does not name them, while the former has items from the two dimensions thoroughly mixed. From the correlation between Initiating Structure and Cohesiveness, it might be argued that a principal who behaves in such a way as to set up and maintain patterns of goal attack thereby develops a certain amount of unity in his staff. This contention, though supported by the evidence of this study, cannot be taken as proven without a great deal more investigation.

Intercorrelations for High and Low Productivity Groups

As a method of examining the source of the relationships or lack of relationships discovered among the variables, correlations among them were calculated separately for the High (P+) and Low (P-) Productivity Groups. The resulting correlation matrices are presented as Table XV, page 88, and Table XVI, page 89. These should be read in conjunction with Table XIV, page 86, which gives the correlation matrix for the five variables for the whole group and with Table XVII, page 90, which gives means and standard deviations for each variable in each productivity group.

TABLE XV

CORRELATION MATRIX FOR PRODUCTIVITY, CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS AND INDUCTION, FOR SCHOOLS IN THE HIGH PRODUCTIVITY GROUP
(N = 20)

	P	C	S	CO	I
P	--	.262	.275	.149	.180
C	.262	--	.320	-.039	-.219
S	.275	.230	--	.108	-.252
CO	.149	-.039	.108	--	.637**
I	.180	-.129	-.252	.637**	--

** Significant at the .01 level

TABLE XVI

CORRELATION MATRIX FOR PRODUCTIVITY, CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS AND INDUCTION, FOR SCHOOLS IN THE LOW PRODUCTIVITY GROUP
(N = 22)

	P	C	S	CO	I
P	--	.395*	.165	.069	.314
C	.395*	--	.689**	.095	.214
S	.165	.689**	--	.237	.240
CO	.069	.095	.237	--	.065
I	.314	.214	.240	.065	--

* significant at the .05 level

** significant at the .01 level

TABLE XVII

MEANS AND STANDARD DEVIATIONS OF FOUR VARIABLES FOR HIGH AND LOW PRODUCTIVITY GROUPS AND FOR THE TOTAL GROUP AND t TESTS OF THE DIFFERENCES BETWEEN HIGH AND LOW GROUP MEANS

		High (N = 20)	Low (N = 22)	t	Total (N = 42)
C	Mean	45.9	42.1	1.93*	43.9
	S.D.	4.9	7.7		6.8
S	Mean	41.0	35.8	2.87**	38.3
	S.D.	4.1	7.3		6.6
CO	Mean	47.1	44.7	1.92*	45.8
	S.D.	3.7	4.4		4.2
I	Mean	39.9	38.6	1.38	39.2
	S.D.	3.6	2.3		3.1

* significant at .05

** significant at .01

Results. None of the four dimensions correlates significantly with the P measure for the P+ Group, though the correlations rank in the same order of magnitude as for the total group. Of the four dimensions, only Consideration has a significant correlation with P for the P- Group and the order of magnitude is quite different from that found for the total group. The correlation with Induction is actually higher than the equivalent correlation for the total group, though it is not statistically significant because of the difference in number of schools.

An interesting difference between the two sets of correlations is that between the LBDQ dimensions and Induction. For the high productivity schools, these relationships were negative, and for the low productivity schools positive. However, the differences between them are not statistically significant.

The correlations between the dimensions for the same instrument offer interesting contrasts: for the total group, C and S correlated very highly--approximately .64; a slightly higher correlation was found in the case of low productivity schools, but the correlation for high productivity schools was only .32. The difference between the two sub-group correlations does not reach statistical significance. A reverse of this phenomenon is shown for the KESCITS dimensions, CO and I: for the total group their correlation is .40, for the P group it is .64 and for the P- group it is only .07. The difference between the sub-group correlations is significant at the .05 level.

Discussion. It is not a little difficult to interpret these differences. In an effort to do so, the data were re-examined from several points of view, which are outlined in the following paragraphs.

Scattergrams of the scores on each instrument for each sub-group and for the total group were examined for the possibility of non-linearity. No suggestion of a curvilinear relationship was present. This is not the explanation for the observed differences in correlations.

The distributions of the four dependent variables each deviated in some respect from the normal curve. They were normalized and the sub-group correlations were calculated anew. These correlations are presented in Table XVIII, page 93. Although there were changes in the absolute values of the correlations, the differences between pairs remained large and in the same direction. The problem cannot, therefore, be explained on the basis of irregularities in the distributions.

The cases were divided into two new sub-groups on the basis of the Cohesiveness scores, on the hypothesis that high cohesiveness might lead to a tendency of the staff to protect itself, giving high scores on Induction (and a high correlation) but not to protect the principal, giving more objective and therefore less highly correlated scores on leader behavior. According to this explanation, low cohesiveness would lead to lower correlation between CO and I and, possibly, higher correlation between C and S. Correlation coefficients between the relevant pairs of dimensions are given in Table XIX, page 94. The differences in correlations, although in the predicted direction, were

TABLE XVIII

CORRELATIONS BETWEEN CONSIDERATION AND INITIATING STRUCTURE AND BETWEEN COHESIVENESS AND INDUCTION (SCORES NORMALIZED) FOR HIGH AND LOW PRODUCTIVITY GROUPS

Correlation between	High (N = 20)	Low (N = 22)
C and S	.233	.584
CO and I	.555	.130

TABLE XIX

CORRELATIONS BETWEEN CONSIDERATION AND INITIATING STRUCTURE AND BETWEEN COHESIVENESS AND INDUCTION FOR HIGH AND LOW COHESIVENESS GROUPS

Correlation between	High (N = 22)	Low (N = 20)
C and S	.536	.758
CO and I	.420	.285

quite small in comparison with those differences found for the productivity sub-groups. The latter differences, therefore, cannot be attributed solely to the influence of staff cohesiveness, though it may be a contributing factor.

The group was subdivided in a third way: on the basis of the principal's Initiating Structure score. This was done with the thought that those principals high in S would tend to create a "balanced" morale situation in the staff; the consideration type of behavior of these principals might fluctuate a good deal giving a low correlation for the LBDQ dimensions. These correlations are given in Table XX, page 96. There is very little difference between the two correlations for the morale dimensions, but a considerable difference between the leader behavior dimensions correlations. Again this may account for a portion of the initial observed differences, but certainly does not explain them entirely.

As a final attempt to find an explanation for this intriguing phenomenon, the difference between the Z-scores on the two leader behavior dimensions was found for each case. Tabulation of these differences in relation to Productivity failed to reveal any meaningful relationships, although it is interesting to note that of the five highest schools in Productivity, there was no difference between C and S in one case and a small difference, with S the higher of the two, in the other four.

To sum up, no single factor was discovered to account for the facts that the LBDQ dimensions correlate with one another more highly

TABLE XX

CORRELATIONS BETWEEN CONSIDERATION AND INITIATING STRUCTURE AND BETWEEN COHESIVENESS AND INDUCTION FOR HIGH AND LOW INITIATING STRUCTURE GROUPS

Correlation between	High (N = 21)	Low (N = 21)
C and S	.327	.616
CO and I	.423	.384

for principals of Low Productivity schools than for those of High Productivity schools and that the KESCITS dimensions correlate with one another significantly more highly for staffs of High Productivity schools than for those of Low Productivity schools. While some of the relationships examined may provide a partial explanation, no single adequate explanation was discovered; indeed, it is entirely possible that the phenomenon being examined is the cause and not the effect of the other differences found. Finally, it must be pointed out that the size of the sub-groups, twenty to twenty-two, falls in the category of small samples; with much larger samples either the observed relationships might disappear or, if they persisted, the explanation for them might be more obvious.

Multiple Correlation of Productivity with Other Variables

Results. Multiple correlation was used to show the relationships between Productivity and the two dimensions of the LBDQ, between Productivity and the two dimensions of KESCITS, and between Productivity and all four other variables. These data are given in Table XXI, page 98. The coefficient of correlation with the LBDQ dimensions was .46, significant at the one per cent level of confidence; that with KESCITS dimensions was .35, which barely fails to reach significance at the five per cent level; the correlation coefficient for the relationship between Productivity and all four of the other variables was .54, which is significant at the .01 level.

TABLE XXI

MULTIPLE CORRELATIONS BETWEEN PRODUCTIVITY AND CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS AND INDUCTION

(N = 42)

Variables	Multiple Correction	Significance level
C, S	.462	.01
C, CO	.475	.01
C, I	.491	.01
S, CO	.452	.05
S, I	.495	.01
CO, I	.347	not significant
C, S, CO	.487	.05
C, S, I	.527	.01
C, CO, I	.517	.01
S, CO, I	.500	.05
C, S, CO, I	.535	.01

It was thought that it would be worthwhile to determine which pair of variables, other than those dealt with above, would give the best possibility of prediction. Multiple correlation was used to determine this. For the same reason, multiple correlations were worked for Productivity with all combinations of three variables. All these data are also given in Table XXI, page 98. The best pair was Initiating Structure and Induction with a correlation of .50, significant at the .01 level, while the best group of three was Consideration, Initiating Structure and Induction, the coefficient being .53, also significant at the .01 level.

The multiple correlations involving four or five variables were calculated by the abbreviated Doolittle method as found in Thorndike (6, Appendix "A"), while those involving three variables were calculated directly from the zero-order coefficients by a formula found in Guilford (1).

Discussion. The significance of the correlation of P with C and S supports the hypothesis that leader behavior is related to productivity. The correlation of P with CO and I falls in that tantalizing area of "in the predicted direction, but not quite statistically significant." It thus fails to support the hypothesis that staff morale is related to productivity. With the exception of this pair (CO and I), there is not a great deal of difference among the other multiple correlations. Nonetheless, it is interesting, in view of the recent emphasis on human relations, that the pair more directly aimed at goal achievement, S and I, is more highly correlated with P

than is the pair more directly aimed at good human relations, C and CO. In this same vein, it is noteworthy that the addition of Cohesiveness to the multiple correlation adds little to the predictive power already shown for the other three variables.

Even by using four variables in the multiple correlation, slightly less than thirty per cent of the variance is accounted for; this may be, and probably is, due to two factors: the imperfection of the instruments, especially KESCITS, and the influence of a number of other uncontrolled variables, such as teaching ability and other characteristics of the particular teachers of the grade nine students in the year for which the P scores were calculated.

Relationships Involving the Dimensions as Dichotomies

Justification. In the results presented to this point, all of the measures have been treated as if they were interval scales dealing with underlying traits that are normally distributed in the population. Despite a certain amount of reasonableness in these assumptions, they are nevertheless assumptions, and are perhaps not entirely justified. The leader behavior and morale dimensions may be of a threshhold type. They are so used when schools are placed in one of four quadrants on a pair of dimensions, whether the dividing point be the mean of all scores or some arbitrarily fixed score. Consequently, it was decided to examine some relationships which involved the dichotomization of the scores of the five variables. In each case, except that of Productivity, the scores were split into two groups at or close to the mean, while

for P scores, the point of division was the fixed mean rather than the sample mean.

Results: Chi-square. Chi-squares on two-by-two fold tables were calculated separately for the relationship between P and each of the other variables. The chi-square values and associated probabilities are given in Table XXII, page 102. It will be noted that for Consideration and for Cohesiveness the chi-square failed of significance; for Induction probability was less than .05 and for Initiating Structure less than .02.

Chi-squares were also calculated for the relationships of P with the pairs of dimensions measured by each of the two instruments. This involved two-by-three fold tables, the middle cell being those schools that were above the mean on one dimension, but below on the other. This procedure is as close an approach to a non-parametric multiple correlation as is known to the investigator. The results of the calculations are also given in Table XXII, page 102. In the case of both instruments there were found statistically significant probabilities: the probability of the observed distribution for CO and I occurring by chance was less than .05, while that for C and S was less than .02.

Discussion: Chi-square. The findings tend to support the conclusions that leader behavior and morale are each related to productivity. In this they tend to reinforce the results of parametric statistics previously presented. There is, however, a difference: the

TABLE XXII

CHI SQUARE VALUES AND ASSOCIATED PROBABILITIES FOR DISTRIBUTION OF PRODUCTIVITY AND EACH OF CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS, INDUCTION, AND FOR PRODUCTIVITY JOINTLY WITH CONSIDERATION AND INITIATING STRUCTURE AND JOINTLY WITH COHESIVENESS AND INDUCTION

Variable(s)	Degrees of freedom	χ^2	Probability is less than
C	1	3.8074	.10
S	1	6.1656	.02
CO	1	2.3918	.20
I	1	4.6796	.05
C & S	2	8.2790	.02
CO & I	2	7.6751	.05

chi-square tests do not show a significant relationship between Productivity and either Consideration or Cohesiveness, while they do indicate a significant one between Cohesiveness and Induction jointly with Productivity; the reverse was the case with the equivalent product-moment and multiple correlations.

Results: Tetrachoric Correlation. By dichotomizing productivity as well as the other four variables, it was possible to calculate tetrachoric correlation coefficients for Productivity with each of the other measures: these figures are given in Table XXIII, page 104.

Discussion: Tetrachoric Correlation. This statistic is not strictly comparable to the product-moment correlation coefficient, in that it is not limited to 1.00, nor is its distribution known; this latter fact prohibits the calculation of significance levels. Its chief interest lies, therefore, in comparisons among the four correlations. This comparison again demonstrates the greater relationship of productivity to the goal oriented dimension rather than the human relations oriented dimension of each instrument.

Results: Product-moment Correlation. As a final attempt to show the influence of the various factors on productivity, a correlation was worked out between the number of dimensions on which a school scored above the mean and the productivity score. This ignores any indication of which dimensions a given school ranked high on: a school whose principal was rated above the mean on the two leader behavior dimensions and whose staff was below the mean on the two morale dimensions was

TABLE XXIII

TETRACHORIC CORRELATION COEFFICIENTS BETWEEN PRODUCTIVITY AND CONSIDERATION, INITIATING STRUCTURE, COHESIVENESS AND INDUCTION

(N = 42)

Variable	r_{tet}
C	.51
S	.65
CO	.24
I	.44

placed in the same category as a school in which the exact opposite situation prevailed, since in each case there were two positive and two negative dimensions. This treatment gives five categories of number of positive dimensions, from zero to four. The number of schools falling in each of these categories, the average P scores of each category and the per cent of the schools in each category which were above the fixed mean on Productivity are given in Table XXIV, page 106. The correlation between number of positive dimensions and P score was .654, significant at well beyond the .01 level.

Discussion: Product-moment correlation. The high correlation between Productivity and the number of dimensions on which a staff or principal scored above the mean lends weight to the suggestion that the dimensions may represent a threshhold type of measure, that is that the position of a score above or below the average is of somewhat greater importance than the actual distance of the score from the mean. The plotting of schools in quadrants on either leader behavior or morale dimensions implies that this threshhold effect has been assumed. It was on this basis that working hypotheses were enunciated in Chapter I.

III. TESTING OF HYPOTHESES

Procedure

Six of the working hypotheses required the comparison of two sets of distributions in quadrants. Four of them called for comparison of observed distributions with random distributions and the remaining two needed comparisons of two sets of observed distributions. Since the

TABLE XXIV

NUMBER OF SCHOOLS, THEIR MEAN PRODUCTIVITY SCORES, AND PER CENT OF THEM ABOVE THE FIXED PRODUCTIVITY MEAN FOR EACH NUMBER OF POSITIVE DIMENSIONS AND PRODUCT-MOMENT CORRELATION BETWEEN PRODUCTIVITY AND NUMBER OF POSITIVE DIMENSIONS

N of positive dimensions	N (schools)	Mean Productivity	Per cent of N above fixed mean P
4	4	43.3	100
3	14	36.1	57
2	13	29.8	53
1	7	26.3	14
0	4	18.5	0

Correlation of productivity with number of positive dimensions: $r = .654$, significant at .01 level

four quadrants are not amenable to arrangement in a ratio scale, it was necessary to seek out a non-parametric statistic for these comparisons. For those hypotheses comparing an observed distribution with a random distribution, the Kolmogorov-Smirnov two-sample test for small samples, found in Siegel (4) was used. This gives the probability of two samples being from the same population. For those hypotheses that required comparison of two observed distribution, the chi-square test was used.

The remaining three hypotheses were those that dealt with the possibility of a significant relationship between the distribution of principals on the LBDQ and that of their staffs on KESCITS. Considerable difficulty was experienced in obtaining a satisfactory statistic with which to measure such a relationship and it was decided to use three procedures which, although none is entirely acceptable, are thought to give jointly a rough estimate of any relationship. The first procedure: scores of 3, 2 and 1 were assigned to leader behavior above the mean on both dimensions, above the mean on one dimension only, and below the mean on both dimensions, respectively; a similar arrangement was made of the scores for the morale dimensions; a product-moment correlation coefficient was then calculated for the relationship between these two sets of scores. The second procedure: the scores for each dimension were converted to standard scores; the two dimensions of each instrument were totalled; a product-moment correlation was calculated for the relationship between the total LBDQ scores and the total KESCITS scores. The third procedure: the total standard scores for the LBDQ

and for KESCITS were each used as a basis for ranking the schools; Spearman's rank-order correlation, corrected for tied ranks, was then calculated.

All the working hypotheses were stated as null hypotheses--predictions of no difference--for convenience in testing. However, the direction of difference, if any, was predicted by the research hypotheses. Thus where the question arises, a one-tailed test of significance is the appropriate one.

Results

The values of D from the Kolmogorov-Smirnov test and the significance of them for hypotheses one, two, four and five are given in Table XXV, page 109; the chi-square values and associated probabilities for hypotheses three and six are given in Table XXVI, page 110; the results of the three types of correlations for hypotheses seven, eight and nine are given in Table XXVII, page 111.

Hypothesis number one was that principals of the High Productivity Group would be randomly distributed in the four quadrants of the Leader Behavior Description Questionnaire. The probability of the observed distribution being from a population in which the dimensions were randomly distributed was less than .05. The hypothesis is therefore rejected.

Hypothesis number two: principals of schools in the Low Productivity Group will be randomly distributed in the four quadrants of the LBDQ. The probability in this case is greater than one in twenty

TABLE XXV

RESULTS OF THE KOLMOGOROV-SMIRNOV TEST OF SIMILARITY OF OBSERVED DISTRIBUTIONS TO RANDOM DISTRIBUTIONS FOR HIGH PRODUCTIVITY SCHOOLS AND LOW PRODUCTIVITY SCHOOLS ON THE LBDQ AND KESCITS

Distribution		K_D	Significance
C & S:	P+	8	.05
	P-	3	not significant
CO & I:	P+	3	not significant
	P-	5	not significant

TABLE XXVI

RESULTS OF CHI-SQUARE TEST OF DIFFERENCES BETWEEN HIGH AND LOW PRODUCTIVITY GROUPS DISTRIBUTION IN THE QUADRANTS OF THE LBDQ AND KESCITS

Instrument	df	χ^2	Probability is less than
LBDQ	1	7.0704	.01
KESCITS	1	4.8043	.05

TABLE XXVII

RELATIONSHIPS BETWEEN SCORES ON THE LBDQ AND KESCITS, FOR LOW PRODUCTIVITY, HIGH PRODUCTIVITY AND TOTAL GROUPS: PRODUCT-MOMENT CORRELATIONS FOR NUMBER OF POSITIVE DIMENSIONS, PRODUCT-MOMENT CORRELATIONS FOR TOTAL SCORES, AND RANK-ORDER CORRELATIONS FOR TOTAL SCORES

	Number of positive dimensions: r	Total Scores r	Total Scores r^1
High (N = 20)	-.38	-.065	.086
Low (N = 22)	.23	.321	.227
Total (N = 42)	.10	.234	.186

that the sample distribution is different from random. The null hypothesis thus is not rejected.

Hypothesis number three: there will be no significant difference between the distribution of the principals of the two groups in the quadrants of the LBDQ. This hypothesis was rejected at the .01 level of confidence.

Hypothesis number four, that staffs of the High Productivity Group will be randomly distributed in the quadrants of KESCITS, and number five, that staffs of the Low Productivity Group will be randomly distributed in the quadrants of KESCITS, were not rejected by the Kolmogorov-Smirnov test.

Hypothesis number six: there will be no significant difference between the distribution of the staffs of the two groups in the quadrants of KESCITS. This hypothesis was rejected by the chi-square test, which showed a probability of less than .05.

Hypothesis number seven: there will be no significant relationship between the distribution of the principals on the LBDQ and the distribution of their staffs on KESCITS for High Productivity Schools. The correlation between the two distributions was -.38 in the number of positive dimensions approach, -.07 in the sum of dimensions approach, and .09 in the rank-order approach. Since none of these is significant, the hypothesis is therefore not rejected.

Hypothesis number eight: there will be no significant relationship between the distribution of principals on the LBDQ and the distribution of their staffs on KESCITS for Low Productivity Schools. The correlation

between the two distributions in the number of positive dimensions approach was .23, that in the sum of dimensions approach was .34, and that in the rank-order approach was .23. None of these is statistically significant, so that the hypothesis is not rejected.

The differences between High and Low Productivity correlations given for hypotheses numbers seven and eight are not statistically significant.

Hypothesis number nine: there will be no significant relationship between the distribution of principals on the LBDQ and the distribution of staffs on KESCITS for the entire sample. The correlations here were .10, .23, and .19, none of which is significant. The hypothesis is therefore not rejected.

Discussion

Principals in High Productivity schools tended to cluster in the upper right hand quadrant on the LBDQ in a manner significantly different from random distribution, while the tendency of principals of Low Productivity schools to cluster in the lower left quadrant was not significant. The differences between the two groups in this regard was significant. The actual distributions are presented in Table XXVIII, page 114. The findings offer substantial support for the underlying hypothesis that schools which are better than average in productivity are more likely to have principals scoring above the mean on the two dimensions of the Leader Behavior Description Questionnaire than are schools which are below average in productivity.

TABLE XXVIII

DISTRIBUTIONS OF HIGH AND LOW PRODUCTIVITY GROUPS IN THE FOUR QUADRANTS OF THE LEADER BEHAVIOR DESCRIPTION QUESTIONNAIRE

P- (N = 22)		P+ (N = 20)	
C+,S- 6	C+,S+ 5	C+S- 2	C+,S+ 13
8 C-,S-	3 C-,S+	2 C-,S-	3 C-,S+

Although the tendency of staffs of High Productivity schools to cluster in the upper right hand quadrant on KESCITS and that of staffs of Low Productivity schools to cluster in the lower left hand quadrant were not significantly different from random distribution, the tendency was present and the difference between the two groups in this respect was significant. This offers considerable support for the underlying hypothesis that schools which are better than average in productivity are more likely to have staffs scoring above the mean on both dimensions of the Keeler Scale for the Cohesiveness and Induction of Teaching Staffs than are the schools which are below average in productivity. Evidence that high cohesiveness and low induction may be at least as "bad morale" as low cohesiveness and low induction has already been cited (supra, page 17). This is supported by a significant difference between the high and low productivity schools in the tendency to cluster in the upper left hand quadrant as compared with the upper right hand quadrant. Contrasting the two assumed kinds of low morale with the one assumed type of high morale, the low productivity schools differ significantly from the high productivity schools in the hypothesized direction. The actual distributions of the staffs on KESCITS are presented in Table XXIX, page 116.

The hypothesized tendency of staff morale to reflect leader behavior was not substantiated by the evidence of this study. Indeed, in the High Productivity Schools, there appeared to be a slight negative relationship, while in Low Productivity schools there was a

TABLE XXIX

DISTRIBUTIONS OF HIGH AND LOW PRODUCTIVITY GROUPS IN THE FOUR QUADRANTS OF THE KEELER SCALE FOR THE COHESIVENESS AND INDUCTION OF TEACHING STAFFS

P- (N = 22)		P+(N = 22)	
CO+,I-	CO+,I+	CO+,I-	CO+,I +
9	2	5	8
7	4	4	3
CO-,I-	CO-,I+	CO-,I-	CO-,I+

moderate, though not statistically significant, positive relationship. For the whole group the relationship was in the predicted direction, but not statistically significant. It is quite possible that the failure to find the expected relationships stems from the inadequacy of KESCITS, particularly the Induction dimension, although other explanations are possible, including an assumption that the aspects of leader behavior measured by the LBDQ are not those that affect the aspects of morale measured by KESCITS.

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CHAPTER VI

SUMMARY, CONCLUSIONS, AND IMPLICATIONS FOR FURTHER RESEARCH

I. SUMMARY

The Problem

This study has dealt with relationships between the leader behavior of the principal as perceived by his staff, staff morale as perceived by the staff, and productivity as measured by results of external grade nine examinations. This problem is considered to have significance for practicing administrators and for the teaching of administration.

Hypotheses

The basic hypotheses involved in the study were: (1) that principals who were considered by their staffs to exhibit a high degree of consideration and initiating structure would be more likely to have schools of high productivity than those exhibiting these behaviors to a lesser degree; (2) that staffs which exhibited a high degree of cohesiveness and induction would be more likely to have schools of high productivity than those exhibiting these behaviors to a lesser degree; (3) that principals exhibiting a high degree of consideration and initiating structure would be more likely to have staffs exhibiting a high degree of cohesiveness and induction than principals lower in these dimensions. From these three, nine working hypotheses (supra, p.10) were elaborated.

Sample

Two groups of schools, matched on a number of variables, including training and experience of principals and teachers, tenure and frequency of absence of staff, composition of staff as to men and women, married and unmarried, and size, were selected from a larger group of schools fitting certain restrictions of size, organization and location. In addition, there appeared to be no consistent differences between groups on socio-economic factors, nor on the amount of time spent by the principal in teaching grade nine. The variations in the intelligence of pupils from school to school were statistically controlled in the measure of productivity.

Instrumentation

The measure of productivity used for the major portion of the study was a standard score based on grade nine departmental examination marks for 1959.

Leader behavior was measured by means of the Leader Behavior Description Questionnaire (see Appendix "A"), administered to staffs of schools in the sample in the course of a personal visit to the schools by the investigator. This instrument provides scores on two dimensions: consideration (behavior of the leader reflecting friendship, trust, warmth and respect for group members) and initiating structure-in-interaction (behavior of the leader aimed at establishing and maintaining standard ways of performing on the part of the group, emphasizing effort toward goal achievement).

Staff morale was measured by means of the Keeler Scale for Cohesiveness and Induction of Teaching Staffs, (see Appendix "D"), an instrument developed for the purpose of the study by the investigator, administered to staffs of schools in the sample in the course of the personal visit to the schools by the investigator. This instrument provides scores on two dimensions: cohesiveness (the extent to which staff members feel drawn to other members of the group) and induction (the extent to which the goals of staff members approach congruency with the goals of the educational enterprise). The weaknesses of this instrument have been detailed in Chapter III (_supra_, page 47 et seq.) and these should be borne in mind in evaluating results obtained with it.

Related Literature

From a review of the literature pertaining to the areas of interest of the study, it was concluded that there is little empirical proof of the existence of the hypothesized relationships among leader behavior, morale and productivity in an educational setting. The evidence available in education and elsewhere is generally contradictory. There seems to be a greater weight of evidence that leader behavior influences productivity, a general assumption that leader behavior influences morale and inconclusive evidence that morale influences productivity.

A number of definitions of morale, implied or explicit, were examined, and the wide variation in the meaning of the word was

suggested to be at least one of the reasons for the contradictory evidence concerning relationships between "morale" and other variables.

Trends in the study of leadership were examined briefly and the results of work done with the Leader Behavior Description Questionnaire were reviewed in some detail.

Collection of Data

Of the forty-six schools chosen for participation in the study, forty-two schools agreed to participate. This response of over ninety per cent is considered very high.

The forty-two schools were visited by the investigator or his representative during the second quarter of 1959, when the LBDQ and KESCITS were administered to the staffs. Generally speaking, teachers and principals in all schools gave excellent co-operation.

Results

Significant correlations were found between Productivity and each of Consideration, Initiating Structure, Cohesiveness and Induction, the first two being more highly significant than the latter two. Statistically significant multiple correlations were found between each pair of variables and Productivity, except for Cohesiveness and Induction, which was not quite significant. The best prediction of Productivity by two variables was given by Initiating Structure and Induction, while the best prediction of Productivity by three variables

was given by Consideration, Initiating Structure and Induction. The highest multiple correlation was that of Productivity with four variables, .54.

Significant correlations were found between the dimensions of each instrument, the one between Consideration and Initiating Structure being quite large. This finding throws some doubt on the validity of treating the measures as independent dimensions.

A significant correlation between Initiating Structure and Cohesiveness was found. This is interpreted as meaning that a principal who emphasizes standard procedures and methods of goal attack thereby encourages feelings of unity and mutual regard among his staff.

Correlations among dimensions were calculated separately for the High and Low Productivity Groups. This part of the analysis yielded some very interesting results. Cohesiveness and Induction correlated more highly in the High Productivity Group than in the Low, and the reverse applied to the correlations between Consideration and Initiating Structure. A number of possible explanations for these results were examined, but no conclusion as to the origin of the differences was reached.

Relationships between Productivity and the other variables were tested by chi-square. By this test, Initiating Structure and Induction were each significantly related to Productivity, while Consideration and Cohesiveness were not. This relative ranking was confirmed by calculation of tetrachoric correlation coefficients.

This greater relationship with goal achievement oriented dimensions is interesting in view of the recent emphasis on the human relations approach in administration.

Chi-square tests were also used to verify the existence of a significant relationship of the leader behavior dimensions jointly with Productivity, and of the staff morale dimensions jointly with Productivity.

The correlation between the number of dimensions on which a school (principal or staff) scored above the mean and the Productivity scores was quite high, .65. This fact compared with the multiple correlation of Productivity with the four dimensions of .54, would seem to indicate that, to some extent, it is more important that a principal or staff be above the mean on each dimension than that they be very much above the mean on any given dimension. Stated otherwise, the position with relation to the mean is of more significance than the distance from the mean.

The first three working hypotheses for the study dealt with the distributions of principals in the four quadrants of the Leader Behavior Description Questionnaire. The principals of the High Productivity schools (hypothesis one) were found to cluster in the upper right hand quadrant--above the mean on both dimensions--and those of Low Productivity schools (hypothesis two) were found to cluster in the lower lefthand quadrant--below the mean on both dimensions. While the latter tendency was not statistically significant, the former was and the difference between the two

groups (hypothesis three) was also significant, at the one per cent level of confidence. One can, therefore, be quite confident that the relationship exists; there is, of course, no proof that this is a causal relationship, though such an assumption seems reasonable.

The next three working hypotheses dealt with the distributions of staffs in the four quadrants of the Keeler Scale for Cohesiveness and Induction of Teaching Staffs. The staffs of the high productivity schools (hypothesis four) were found to cluster in the upper right hand quadrant--above the mean on both dimensions--but this was not statistically significant. Staffs of Low Productivity Schools (hypothesis five) tended not to cluster in the upper right hand quadrant; rather they tended to cluster equally in the two left hand quadrants. Although this tendency was not statistically significant, it is provocative: if a causal relationship can be assumed to exist between staff morale and productivity, then high cohesiveness and low induction is at least as detrimental to productivity as low cohesiveness and low induction. This is the tendency found by Schachter _et_ _al_. (3), in their laboratory of the two dimensions' effect on productivity. The distribution of the staffs of the High Productivity Schools was significantly different at the five per cent level from that of the Low Productivity Schools (hypothesis six).

The last three hypotheses dealt with relationships between the distribution of principals in the leader behavior quadrants and the distribution of staffs in the morale quadrants. There was little

evidence to support the contention that good leader behavior causes high staff morale. In the case of the High Productivity Schools (hypothesis seven), there appeared to be no relationship or a slightly negative one. In the instance of the Low Productivity Schools (hypothesis eight), and of the group taken as a whole (hypothesis nine), the relationship was in the predicted direction but not statistically significant.

II. CONCLUSIONS

It is not the intention of the investigator to generalize widely from the evidence of this study. Properly speaking, the only generalization possible is to the population of schools from which this sample was drawn: non-urban, small schools, including grades one to twelve in the Province of Alberta. While it is true that the conclusions may be valid for a much larger population, such wider validity would be difficult to justify from a rigid interpretation of the data. The conclusions that follow, therefore, are, strictly speaking, only valid for schools of the type included in the sample.

Leader Behavior and Productivity

All of the statistics give strong support to the hypothesis that leader behavior of the principal of a school, as perceived by his staff, measured by the Leader Behavior Description Questionnaire, is significantly related to productivity of the schools as measured

by grade nine departmental examinations, 1959 results, with the effect of pupil intelligence held constant.

There is some evidence to indicate that the relationship of the Initiating Structure dimension is greater than that of the Consideration dimension, but each is related to productivity as measured, as well as being jointly related.

These findings constitute a piece of direct evidence of the validity of the Leader Behavior Description Questionnaire, within the limitations of the sample.

Staff Morale and Productivity

The weight of evidence in this study supports the hypothesis that the morale of the staff of a school measured by the Keeler Scale for the Cohesiveness and Induction of Teaching staffs, is related to productivity of the school as measured by grade nine departmental examinations, 1959 results, with the effect of pupil intelligence held constant.

The relationship here is less strong than that of leader behavior and productivity, but it is still statistically significant.

There is considerable evidence that the relationship of the Induction dimension is greater than that of the Cohesiveness dimension, but each appears to be related to productivity as measured as well as being jointly related.

While these findings do not demonstrate the validity of defining morale as being made up of the two dimensions posited,

they do demonstrate the usefulness of this approach. It has been shown, in Chapter III, that the instrument, KESCITS, is not as valid as is desirable, particularly in regard to the Induction dimension. It is therefore quite probable that an instrument that measured the two dimensions more accurately would have yielded more significant results.

Leader Behavior and Staff Morale

The weight of evidence in this study does not support the hypothesis that the leader behavior of a principal as perceived by his staff, measured by the Leader Behavior Description Questionnaire is related to the morale of the staff as measured by the Keeler Scale for the Cohesiveness and Induction of Teaching Staffs. While the relationship is in the predicted direction, it is not statistically significant.

There is some evidence that there is a relationship between the Initiating Structure dimension of the LBDQ and the Cohesiveness dimension of KESCITS.

The lack of significant relationship may be explained in at least three ways: the relationship may not be there, which seems unlikely from a logical point of view and which runs contrary to common assumption based on experience; the relationship may not be shown by the instruments used due to an accumulation of weaknesses in the instruments themselves; there may be other dimensions of both leader behavior and staff morale, the measurement of which would demonstrate significant correlation.

III. FURTHER RESEARCH

There are a number of avenues of additional research opened up by this study. The most pressing need, and one which must be met prior to any worthwhile replication, is an extensive revision of the Keeler Scale for the Cohesiveness and Induction of Teaching Staffs. Despite the fact that the instrument yielded significant results in this study, its use in other studies is not recommended. It contains an inadequate number of items on both dimensions, and the validity of the Induction dimension items has not been satisfactorily established.

Assuming that a satisfactory revision of KESCITS is made, relationships between leader behavior, morale and other measures or aspects of productivity should be examined. The only measure of productivity used in this study was pupil examination achievement; this is important, but it is certainly not the whole of the productivity of a school. Efforts to quantify and study other aspects of productivity should prove rewarding.

With an improved morale instrument, the question of a relationship between morale and leader behavior should be examined at greater length. The inconclusive results of the present study beg for confirmation or rejection.

Finally the entire study should be replicated, with the single change of an improved morale instrument, in a wide variety

of situations. Such replication would serve the purpose of verification of the results and of demonstrating the extent of their applicability to other situations. One might hypothesize also that such replication would show a stronger relationship between leader behavior and morale.

IV. IMPLICATIONS

The whole field of study of educational administration, indeed, of administration in general, has been based on a set of assumptions supported, at best, by indirect evidence. In recent decades these assumptions have relied to a large extent on the theories of the school of thought known as the human relations approach, which puts a high premium on good interpersonal relations in an organization, particularly between the leader and the members of the organization.

Some of the most crucial of these assumptions are those examined in this study: the behavior of the leader has an influence on the organizational outcomes; the morale of the group has an influence on these outcomes and it is therefore important to the administrator; and the behavior of the administrator is a key determinant of staff morale. This study has provided some direct evidence concerning these assumptions, evidence which supports the first two, but not the third.

Examining this evidence in more detail, however, one finds that the dimensions of leader behavior and staff morale more directly

concerned with good interpersonal relations are less closely associated with high productivity than are the dimensions concerned with setting up patterns and methods of goal attack and with group behavior aimed at goal achievement. If one is willing to use the terms, the "hard" dimensions seem more related to productivity than the "soft" ones.

These findings are worthy of attention. If additional research should bear them out, the implication seems to be that the pendulum has swung too far in the direction of the human relations approach and this has led to the neglect of the other important factor in increasing productivity of organizations.

The possibility of the necessity of a change in emphasis in the study of administration has been indicated. Such a change would influence the training program for potential administrators as well as the in-service program for practicing administrators.

Another implication is on a somewhat different plane: the findings of this study offer evidence of the importance of the principalship. If the observed relationship between the leader behavior of the principal and pupil productivity is a causal one, then it is time for a redefinition of the principal's role from record-keeper and office manager to educational leader of his staff.

Finally, there is considerable evidence, including this study, that high scores on the LBDQ are associated with effectiveness of the educational administrator. Studies done by McBeath (2) and Greenfield (1) show that high scores on the Teacher Leader Behavior Description

Questionnaire, an adaptation of the LBDQ, are associated with measures of teacher effectiveness. Thus it would seem that the same behaviors that made for effective teaching also make for effective administration, which provides some support for the time-honored practice of using teaching ability as a criterion in selecting school administrators.

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APPENDIX "A"

LEADER BEHAVIOR DESCRIPTION QUESTIONNAIRE

LEADER BEHAVIOR DESCRIPTION QUESTIONNAIRE

Developed by staff members of
The Ohio State Leadership Studies

Name of Leader Being Described

Name of Group Which He Leads

Your Name

On the following pages is a list of items that may be used to describe the behavior of your supervisor. Each item describes a specific kind of behavior, but does not ask you to judge whether the behavior is desirable or undesirable. This is not a test of ability. It simply asks you to describe, as accurately as you can, the behavior of your supervisor.

Note: The term, "*group,*" as employed in the following items, refers to a department, division, or other unit of organization which is supervised by the person being described.

The term "*members,*" refers to all the people in the unit of organization which is supervised by the person being described.

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DIRECTIONS:

a. READ each item carefully.

b. THINK about how frequently the leader engages in the behavior described by the item.

c. DECIDE whether he always, often, occasionally, seldom or never acts as described by the item.

d. DRAW A CIRCLE around one of the five letters following the item to show the answer you have selected.

A—Always
B—Often
C—Occasionally
D—Seldom
E—Never

1. He does personal favors for group members. A B C D E
2. He makes his attitudes clear to the group. A B C D E
3. He does little things to make it pleasant to be a member of the group. A B C D E
4. He tries out his new ideas with the group. A B C D E
5. He acts as the real leader of the group. A B C D E
6. He is easy to understand. A B C D E
7. He rules with an iron hand. A B C D E
8. He finds time to listen to group members. A B C D E
9. He criticizes poor work. A B C D E
10. He gives advance notice of changes. A B C D E
11. He speaks in a manner not to be questioned. A B C D E
12. He keeps to himself. A B C D E
13. He looks out for the personal welfare of individual group members. A B C D E
14. He assigns group members to particular tasks. A B C D E
15. He is the spokesman of the group. A B C D E
16. He schedules the work to be done. A B C D E
17. He maintains definite standards of performance. A B C D E
18. He refuses to explain his actions. A B C D E

19. He keeps the group informed. A B C D E

20. He acts without consulting the group. A B C D E

21. He backs up the members in their actions. A B C D E

22. He emphasizes the meeting of deadlines. A B C D E

23. He treats all group members as his equals. A B C D E

24. He encourages the use of uniform procedures. A B C D E

25. He gets what he asks for from his superiors. A B C D E

26. He is willing to make changes. A B C D E

27. He makes sure that his part in the organization is understood by group members. A B C D E

28. He is friendly and approachable. A B C D E

29. He asks that group members follow standard rules and regulations. A B C D E

30. He fails to take necessary action. A B C D E

31. He makes group members feel at ease when talking with them. A B C D E

32. He lets group members know what is expected of them. A B C D E

33. He speaks as the representative of the group. A B C D E

34. He puts suggestions made by the group into operation. A B C D E

35. He sees to it that group members are working up to capacity. A B C D E

36. He lets other people take away his leadership in the group. A B C D E

37. He gets his superiors to act for the welfare of the group members. A B C D E

38. He gets group approval in important matters before going ahead. A B C D E

39. He sees to it that the work of group members is coordinated. A B C D E

40. He keeps the group working together as a team. A B C D E

APPENDIX "B"

KESCITS (VERSION "A")

KESCITS (VERSION "A")

Instructions

This schedule consists of twenty incomplete statements, each with five possible items to replace the blank. Not all the statements measure the same thing. There are no "right" answers. While some of the statements might seem embarrassing, you may be assured that the names of individual respondents will not be known to anyone in the system or outside of it, and the names of schools will be known only to me. It is essential that the questions be answered as accurately as possible. Thank you for your co-operation.

1. Read the statement.
2. Read the five possible items for the blank.
3. Choose the item which you feel best applies.
4. Circle the letter of this item.

(Note: "Staff" means the teachers employed full time in this school, with the exception of the principal.)

1. I prefer to attend social gatherings where _____ of the other staff members are present.

   a. all
   b. most
   c. about half
   d. a few
   e. none

2. I discuss non-school topics with other staff members _____.

   a. never or almost never
   b. rarely
   c. sometimes
   d. often
   e. very often

3. I like _____ of the other staff members.

   a. all
   b. all but one or two
   c. over half
   d. less than half
   e. very few or none

4. On the whole, I have ____ interests in common with the rest of the staff.

   a. no
   b. a few
   c. some
   d. many
   e. a great many

5. I think the other members of this staff like me ____.

   a. very much
   b. a good deal
   c. fairly well
   d. a bit
   e. not at all

6. I ____ participate in non-school activities with other staff members.

   a. very often
   b. often
   c. sometimes
   d. rarely
   e. never or almost never

7. I get along well with ____ of the other staff members.

   a. very few or none
   b. less than half
   c. over half
   d. all but one or two
   e. all

8. I take part in out of school activities with ____ of the other members of the staff.

   a. all
   b. all but one or two
   c. over half
   d. less than half
   e. very few or none

9. Of the other staff members, ____ like me.

   a. all
   b. all but one or two
   c. over half
   d. less than half
   e. very few or none

10. On the average, I spend ____ hour(s) per week talking with other staff members in the school, on other than school business.

    a. more than three
    b. two to three
    c. one to two
    d. one-half to one
    e. less than one-half

11. I am ____ interested in teaching.

    a. slightly
    b. somewhat
    c. quite
    d. deeply
    e. extremely

12. I do ____ reading to improve my teaching.

    a. a very large amount of
    b. a large amount of
    c. some
    d. little
    e. no

13. I spend ____ hours per week, on the average, on school work. (both in and out of the classroom)

    a. fifty-five or more
    b. fifty to fifty-four
    c. forty-five to forty-nine
    d. forty to forty-four
    e. less than forty

14. I have taken ____ course(s) to improve my teaching since getting my first permanent licence.

    a. no
    b. one
    c. a few
    d. some
    e. many

15. I seek advice from other teachers on how to increase the effectiveness of my teaching ____.

    a. very often
    b. often
    c. sometimes
    d. rarely
    e. never or almost never

16. I seek advice from other persons in the profession on how to increase the effectiveness of my teaching _____.

    a. never or almost never
    b. rarely
    c. sometimes
    d. often
    e. very often

17. I spend _____ hour(s) per week, on the average, in working with students in extra-curricular activities.

    a. over two
    b. one and a half to two
    c. one to one and a half
    d. one-half to one
    e. less than one-half

18. I attend the local Home and School meetings _____.

    a. regularly
    b. frequently
    c. occasionally
    d. seldom
    e. never

19. I am _____ willing to work on staff committees.

    a. never
    b. seldom
    c. occasionally
    d. usually
    e. always

20. I am _____ able to stay to the end of staff meetings.

    a. always
    b. usually
    c. occasionally
    d. seldom
    e. never

APPENDIX "C"

KESCITS (VERSION "B")

KESCITS (VERSION "B")

Instructions

This schedule consists of sixteen incomplete statements, each with five possible items to replace the blank. Not all the statements measure the same thing. There are no "right" answers. While some of the statements might seem embarrassing, you may be assured that the names of individual respondents will not be known to anyone in the system or outside it, and the names of schools will be known only to me. It is essential that the statements be completed as accurately as possible. Thank you for your co-operation.

1. Read the statement.
2. Read the five possible items for the blank.
3. Choose the item which you feel best applies.
4. Circle the letter of this item.

(Note: "Staff" means the teachers employed full time in this school, with the exception of the principal.)

1. Members of this staff enjoy social gatherings of the entire staff _____.

   a. very much
   b. a good deal
   c. fairly well
   d. slightly
   e. not at all

2. Members of this staff discuss non-school topics with one another _____.

   a. never or almost never
   b. rarely
   c. sometimes
   d. often
   e. very often

3. On the whole, members of this staff like one another _____.

   a. very well
   b. well
   c. fairly well
   d. little
   e. very little

4. In general, members of this staff have _____ interests in common.

    a. no
    b. a few
    c. some
    d. many
    e. a great many

5. Members of this staff participate in non-school activities with one another _____.

    a. very often
    b. often
    c. sometimes
    d. rarely
    e. never or almost never

6. There are _____ members of the staff who do not get along well with the rest.

    a. no
    b. one or two
    c. three or four
    d. five or six
    e. more than six

7. On the average, members of this staff spend _____ hour(s) per week talking with one another in school, on other than school business.

    a. less than half an
    b. one-half to one
    c. one to two
    d. two to three
    e. more than three

8. In general, the members of the staff are _____ interested in teaching.

    a. extremely
    b. deeply
    c. quite
    d. somewhat
    e. slightly

9. In general, the members of the staff do _____ reading to improve their teaching.

   a. a very large amount of
   b. a large amount of
   c. some
   d. little
   e. no

10. On the average, members of this staff spend _____ hours per week on school work. (in and out of the classroom)

   a. fifty-five or more
   b. fifty to fifty-four
   c. forty-five to forty-nine
   d. forty to fourty-four
   e. less than forty

11. Of the members of the staff _____ have taken courses to improve their teaching since getting their first permanent licence.

   a. very few or none
   b. less than half
   c. over half
   d. all but one or two
   e. all

12. The members of this staff seek advice from other teachers on how to increase the effectiveness of their teaching _____.

   a. very often
   b. often
   c. sometimes
   d. rarely
   e. never or almost never

13. The members of this staff seek advice from other professional persons on how to increase the effectiveness of their teaching _____.

   a. very often
   b. often
   c. sometimes
   d. rarely
   e. never or almost never

14. Of the members of the staff, _____ spend one half hour or more per week, on the average, in working with students in extra-curricular activities.

    a. very few or none
    b. less than half
    c. over half
    d. all but one or two
    e. all

15. Of the members of the staff, _____ attend the meetings of the local Home and School regularly.

    a. all
    b. all but one or two
    c. over half
    d. less than half
    e. very few or none

16. _____ members of the staff are always able to stay to the end of staff meetings.

    a. very few or none
    b. less than half
    c. over half
    d. all but one or two
    e. all

APPENDIX "D"

KESCITS

KESCITS

Instructions

1. Read the statement.
2. Read the five possible items for the blank.
3. Choose the item which you feel best applies.
4. Circle the letter of this item.

(Note: "Staff" means the teachers employed full time in this school, with the exception of the principal.)

1. I prefer to attend social gatherings where _____ of the other staff members are present.

   a. all
   b. most
   c. about half
   d. a few
   e. none

2. I discuss non-school topics with other staff members _____.

   a. never or almost never
   b. rarely
   c. sometimes
   d. often
   e. very often

3. I like _____ of the other staff members.

   a. all
   b. all but one
   c. all but two
   d. over half
   e. less than half

4. On the whole, I have _____ interests in common with the rest of the staff.

   a. no
   b. a few
   c. some
   d. many
   e. a great many

5. I participate in non-school activities with other staff members.

   a. very often
   b. often
   c. sometimes
   d. rarely
   e. never or almost never

6. There is (are) _____ member(s) of this staff who does (do) not get along well with the rest.

   a. no
   b. one
   c. two
   d. three
   e. four or more

7. I take part in out of school activities with _____ of the other members of the staff.

   a. all
   b. all but one or two
   c. over half
   d. less than half
   e. very few or none

8. Of the other staff members, _____ like me.

   a. all
   b. all but one
   c. all but two
   d. over half
   e. less than half

9. On the average, I spend _____ hour(s) per week talking with other staff members in the school, on other than school business.

   a. more than three
   b. two to three
   c. one to two
   d. one-half to one
   e. less than one-half

10. I am _____ interested in teaching.

   a. slightly
   b. somewhat
   c. quite
   d. very much
   e. extremely

11. I do ____ reading to improve my teaching.

    a. a very large amount of
    b. a large amount of
    c. some
    d. little
    e. no

12. I spend _____ hours per week, on the average, on school work (including actual teaching time).

    a. fifty-two or more
    b. forty-seven to fifty-one
    c. forty-two to forty-six
    d. thirty-seven to forty-one
    e. less than thirty-seven

13. I have taken _____ course(s) to improve my teaching since getting my first permanent licence.

    a. no
    b. one
    c. two or three
    d. four or five
    e. six or more

14. I seek advice from other teachers on how to increase the effectiveness of my teaching _____.

    a. very often
    b. often
    c. sometimes
    d. rarely
    e. never or almost never

15. I seek advice from persons in the profession other than teachers on how to increase the effectiveness of my teaching _____.

    a. never or almost never
    b. rarely
    c. sometimes
    d. often
    e. very often

16. I spend ____ minutes per week, on the average, in working with students in extra-curricular activities.

    a. eighty or more
    b. sixty to seventy-nine
    c. forty to fifty-nine
    d. twenty to thirty-nine
    e. less than twenty

17. I attend the local Home and School meetings ____.

    a. regularly
    b. frequently
    c. occasionally
    d. seldom
    e. never

18. I am ____ willing to work on staff committees.

    a. never
    b. seldom
    c. occasionally
    d. usually
    e. always

DATA SHEET

Instructions: For #1 - 5, please circle the correct answer.
For #6 - 9, please enter the correct number in the blank.

1. Age (a) 25 or under
(b) 26 - 35
(c) 36 - 45
(d) 46 - 55
(e) 56 or over

2. Sex (a) female
(b) male

3. Marital Status (a) single
(b) married
(c) other

4. Grade(s) taught prior to this year

1	4	7	10
2	5	8	11
3	6	9	12

5. Grade(s) taught this year

1	4	7	10
2	5	8	11
3	6	9	12

6. Days missed on account of sickness to date this year: ________

7. Total teaching experience prior to this year: ________

8. Teaching experience on this staff prior to this year: ________

9. Years of training beyond grade eleven (academic and professional):

____

APPENDIX "E"

CORRESPONDENCE

April 8, 1959.

Mr. Bernard T. Keeler,
Faculty of Education,
University of Alberta,
Edmonton, Alberta.

Dear Mr. Keeler:

I have your letter, thesis proposal and instrument with respect to your proposed study. As I mentioned, anybody in teaching these days is quite nervous about being rated. However, I have looked at your material and can assure you that our Association has no objection to your proposed study.

I wish you good fortune with it.

Very sincerely yours,

ALBERTA TEACHERS' ASSOCIATION

(signed)

S.C.T. Clarke,
General Secretary.

10936 - 87 Avenue,
Edmonton, Alberta.

Dear

I am currently conducting a research project as part of the work for the degree of Doctor of Education with the Division of Educational Administration at the University of Alberta. The chairman of my committee is Dr. J.H.M. Andrews. The participation of your school in this project is requested.

Recent research tends to show that the way the staff thinks the principal acts (which is not necessarily the way he actually acts) has an effect on the relationships of the teachers with one another; this in turn probably affects the manner in which they carry out their teaching duties.

In order to test these relationships. I plan to visit a number of carefully selected schools to administer two questionnaires to each staff: one which measures how the teachers see the principal's acting as a leader, and one which measures certain factors about the staff as a sociological group. The total time needed, for explaining the purpose of the research and for having the teachers complete the questionnaires is about forty-five minutes. All information will, of course, be held in strictest confidence.

I will be visiting schools between the middle of April and the end of the school year. Please fill out the enclosed card and mail it to me as soon as possible as it will take some time to draw up an exact schedule. You will be informed of the date of my visit at least one week in advance. Your contribution consists in arranging a staff meeting for the purpose of my administering the questionnaire on the date assigned.

Your school has been selected as representative of one particular type and paired with another of the same type. Therefore, any refusal to participate would be unfortunate from my point of view since it would mean eliminating two schools from the sample.

Should you indicate on the card that you require additional information, I shall be most happy to supply it. Thank you in advance for your co-operation.

Yours sincerely,

(signed)

Bernard T. Keeler.

10936 - 87 Avenue,
Edmonton, Alberta.

Dear

Some time ago I sent a letter asking for participation by your staff in a research study I am undertaking. In case the original letter went astray, I am enclosing a copy of it along with a reply card.

You will note the reference to the experimental design whereby the schools were selected in pairs. The school paired with yours has agreed to participate, so I am particularly anxious that you do so as well.

If it would be easier to arrange, I am willing to meet the staff in two groups rather than one. In the schools I have visited to date, meetings have taken approximately one-half hour.

May I expect the return of the reply card at your earliest convenience? Thank you.

Yours sincerely,

(signed)

Bernard T. Keeler.

10936 - 87 Avenue,
Edmonton, Alberta.

Dear

I am currently conducting a research project as part of the work for the degree of Doctor of Education with the Division of Educational Administration at the University of Alberta. The Chairman of my committee is Dr. J. H. M. Andrews.

Recent research tends to show that the way the staff thinks the principal acts has an effect on the relationships of the teachers with one another as well as with the principal; this effect probably accounts for differences in classroom performance of the teachers.

In order to test these relationships, I plan to visit a number of schools in the province to administer two questionnaires to each staff, one measuring the leader behavior of the principal as seen by the teacher and the other measuring certain attributes of the staff as a group.

I have written the principals of the schools selected for this purpose to initiate arrangements for administering this instrument. The following schools have been selected in your Division:

This letter is for the purpose of keeping you informed should any questions arise concerning this project, and to ask your co-operation in furthering this project, should the occasion present itself to you.

Yours sincerely,

(signed)

Bernard T. Keeler.

10936 - 87 Avenue,
Edmonton, Alberta.

June 10, 1959.

Dear Sir:

You may recall having received a letter from me about two months ago, briefly outlining a research project being undertaken for my thesis for the Ed.D. in Educational Administration. (University of Alberta, Dr. J. H. M. Andrews is chairman of my committee.)

The following school(s) in your superintendency was (were) included in the sample:

Visits to the forty-two schools in the study for the purposes of administering the questionnaires used, have now been completed. In all cases I (or my representative) was well received. However, preliminary analysis of the data gives inconclusive results. In an effort to obtain confirmation or correction of the data, I am asking you to make ratings on three variables: productivity of the school, cohesiveness of the staff, and induction of the staff. Each of these is defined below.

The ratings are to be made on a five-point scale: much above average (A), above average (B), average (C), below average (D), and much below average (E). The rating on each characteristic should be made by comparing the school in question with all the schools with which you have been or are now professionally associated (as teacher, vice-principal, principal, or superintendent.)

Definitions: Productivity: the extent to which the school produces in its pupils the desired changes in knowledge, skills and attitudes.

Cohesiveness: the degree to which the staff is a real group--enjoying one another's company, sharing interests, and getting along well with one another.

Induction: the degree to which the staff members are willing to sacrifice their own personal convenience and objectives in order to try to attain the aims of the school.

I need hardly assure you that these ratings will be held in the strictest confidence; schools will not be named or otherwise identified in the thesis or elsewhere.

I enclose a rating sheet for each participating school in your superintendency and a stamped, self-addressed envelope. Thank you very much for giving your early consideration to this matter.

Yours sincerely,

(signed)

Bernard T. Keeler.

Rating sheet.

School:____

Superintendent:____________________________________

Productivity: . . . . A B C D E (Circle one)

Cohesiveness: . . . . A B C D E (Circle one)

Induction: . . . . A B C D E (Circle one)

Comments, if any:

APPENDIX "F"

EARLY PRODUCTIVITY MEASURES

EARLY PRODUCTIVITY MEASURES

It was mentioned in Chapter V, page 84, that two early measures of the productivity of the school in the sample had been obtained. One of these, referred to here as the 1957-58 productivity measure (P_{57-58}), was obtained from Alberta grade IX departmental examination results in the manner outlined in Chapter I, page 6 _et_ _seq_. The second,called the superintendents' estimate of productivity P_S, was obtained by correspondence with superintendents of the schools forming the sample.

This appendix deals with relationships between these two measures of productivity and the measure of productivity, P_{59}, used in the main study and with relationships between P_{57-58} and other variables used in the main study.

_1957-58_ _Productivity_ _Measure_

On the basis of the 1957-58 Productivity measure and the two instruments used in the study, there appeared to be little difference between High and Low Productivity Groups in dimension means on either of the leader behavior dimensions or of the staff morale dimensions. Means and standard deviations for each dimension for the High and Low Productivity Groups and t-tests of the differences between means are given in Table XXX, page 175. None of the t's is significant. Calculation of the product-moment coefficients of correlation of P_{57-58} with the other four variables, shown in Table XXXI, page 176,

TABLE XXX

MEANS AND STANDARD DEVIATIONS OF FOUR VARIABLES FOR HIGH AND LOW PRODUCTIVITY (1957-58) GROUPS AND t-TESTS FOR DIFFERENCES BETWEEN MEANS

		High (N = 20)	Low (N = 22)	t*
C	Mean	44.4	43.4	.488
	S.D.	6.1	7.4	
S	Mean	38.9	37.8	.545
	S.D.	6.5	6.6	
CO	Mean	45.7	46.0	.227
	S.D.	4.6	3.9	
I	Mean	38.7	39.8	1.183
	S.D.	2.8	3.2	

*t value required for significance at the .05 level = 2.021

TABLE XXXI

PRODUCT-MOMENT CORRELATIONS AND SELECTED MULTIPLE CORRELATIONS BETWEEN PRODUCTIVITY (1957-58) AND FOUR OTHER VARIABLES

(N = 42)

Variable(s)	Correlation with P_{57-58}
C	.029
S	.034
CO	-.069
I	-.072
C and S	.112
CO and I	.075
C, S, CO and I	.124

confirms the lack of relationship. The correlations with Consideration and Initiating Structure were very small and positive, those with Cohesiveness and Induction were very small and negative. Of course none of these approached significance. Multiple correlation of P_{57-58} with the LBDQ dimensions, with KESCITS dimensions, and with all four dimensions, shown in Table XXXI, page 176, were also low and not statistically significant.

Superintendents' Estimates of Productivity

An attempt was made to obtain a different measure of productivity by asking the superintendents of the schools involved in the study to make an estimate of it. The request (see Appendix "E") was made at the same time as that for estimates of cohesiveness and induction, dealt with in Chapter III (*supra*, p. 64). Twenty-seven of the thirty superintendents, dealing with thirty-eight of the forty-two schools, responded to the request. The ratings were made on a five point scale: A - much above average, B - above average, C - average, D - below average, and E - much below average. The reference group against which these ratings were to be made was defined as "all schools with which the rater has been professionally associated as teacher, vice-principal, principal or superintendent." Productivity was defined for the superintendents as "the extent to which the school achieves the aims of education." The estimates, as actually made, did not prove to be very useful, since no school was placed in either "A" or "E" categories. There were seventeen ratings of "B", sixteen ratings of "C" and only five ratings of "D". The correlation

between the superintendents' estimates (P_S) and P_{57-58}, given in Table XXXII, page 179, was not significant. Whether this correlation is meaningful is open to question on three counts: the small number of wide categories of P_S, the dubious treatment of these estimates as constituting a single scale, and, most important, the fact that the P_{57-58}, scores measure only a part of productivity, while the superintendents were requested to estimate productivity in general. Because of the stated objections to the use of P_S, no attempt was made to relate it to measures obtained for other variables.

Correlation between P_{57-58} and P_S and P_{59}

The correlation between P_{57-58} and P_{59} is practically nil. The correlation between the 1959 measure and the superintendents' estimates is essentially the same as that between the 1957-58 measure and the estimates: not significant. These correlations are shown in Table XXXII, page 179.

Comparison of the 1957-58 and 1959 Productivity Scores

The scores for the group of schools from which the sample was drawn (N = 179) had a mean of thirty and a standard deviation of ten. In the following discussion these figures were referred to as the fixed mean and the fixed standard deviation.

Of the schools participating in the study, twenty were above the fixed mean and twenty-two were below it, in terms of the 1957-58 Productivity Measure. On the basis of the 1959 Productivity measure, there were again twenty schools above the fixed mean and twenty-two

TABLE XXXII

CORRELATION MATRIX FOR THREE MEASURES OF PRODUCTIVITY: PRODUCTIVITY (1957-58), PRODUCTIVITY (1959), AND PRODUCTIVITY (SUPERINTENDENTS' ESTIMATES)

(N = 38)

	P_{57-58}	P_{59}	P_S
P_{57-58}	-	.005	.151
P_{59}	.005	-	.156
P_S	.151	.156	-

schools below it, though in many cases they were not the same schools found in these divisions on the 1957-58 Productivity measure. There were differences between the two distributions: the P_{59} scores extended over a wider range--5.3 fixed standard deviations compared with 4.7 for the earlier scores; at the same time there was a slightly greater tendency to group near the mean with a sample standard deviation of 11.5 compared with 11.7; interestingly, the sample mean changed from 27.9 to 30.5. This was not, however, a statistically significant difference as shown by a t value of .9482. Table XXXIII, page 181, gives a resume of this data. Table XXXIV, page 182, gives the distributions of the sample for each productivity measure. The distributions do not differ significantly from one another as shown by a chi-square value of 7.111.

TABLE XXXIII

MEANS, STANDARD DEVIATIONS AND RANGES OF TWO SETS OF PRODUCTIVITY SCORES FOR THE SAMPLE

(N = 42)

Measure	Mean*	S.D.	Range in Scores	Range in terms of population S.D.'s
P_{57-58}	27.9	11.7	2 - 49	4.7
P_{59}	30.5	11.5	3 - 56	5.3

* t = .9482 (not significant)

TABLE XXXIV

DISTRIBUTIONS OF TWO SETS OF PRODUCTIVITY SCORES FOR THE SAMPLE
(N = 42)

Scores:	2-9	10-19	20-29	30-39	40-49	50-56
P_{57-58}	1	12	9	12	8	0
P_{59}	1	6	15	12	4	4

= 7.111 (not significant)

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